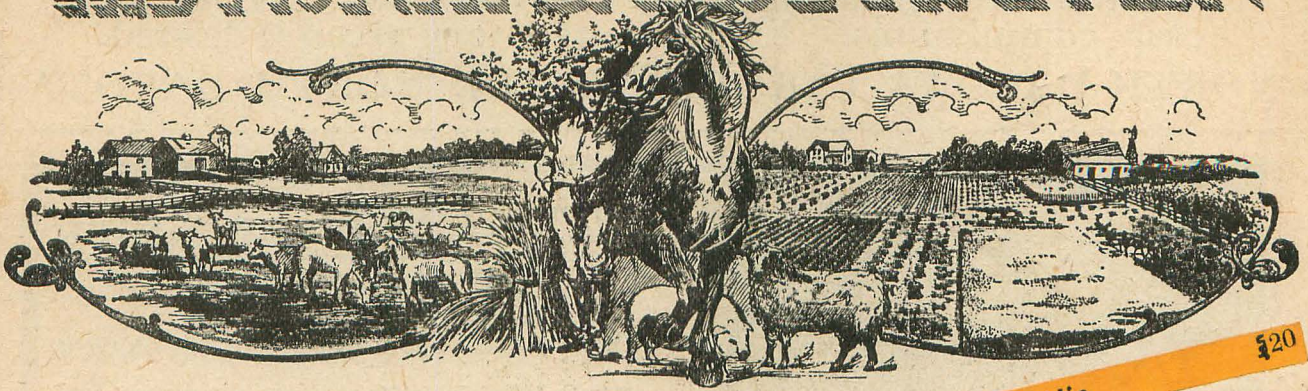


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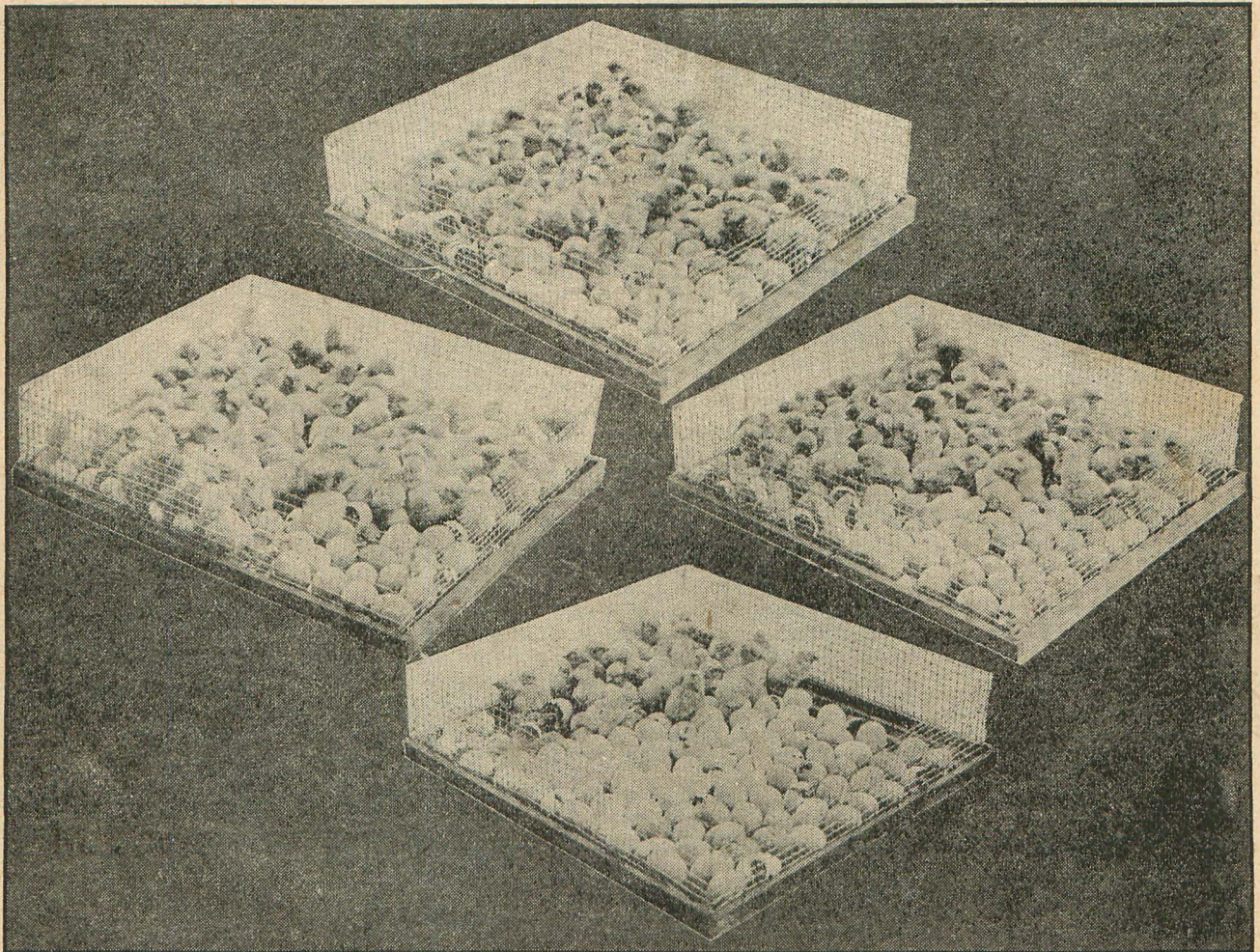
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Lisbon, N. D.

March 15, 1917

Vol. 18, No. 9



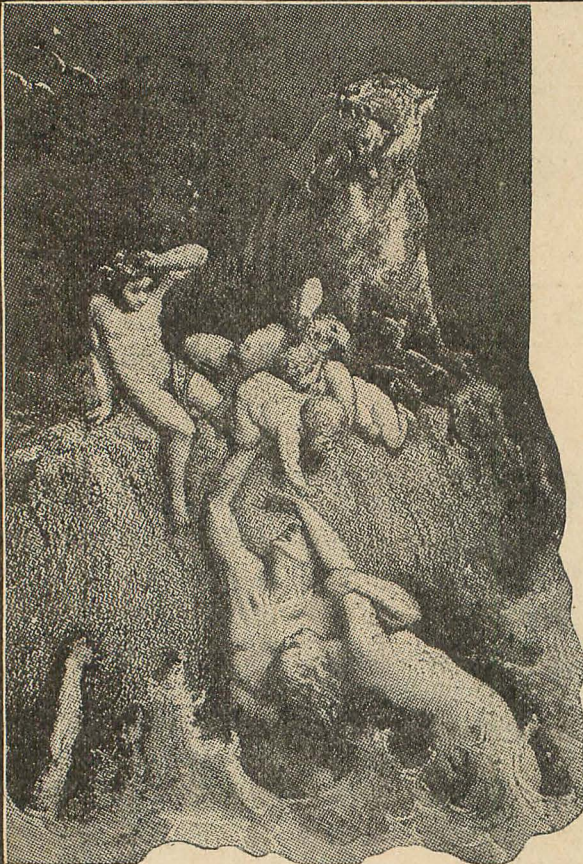
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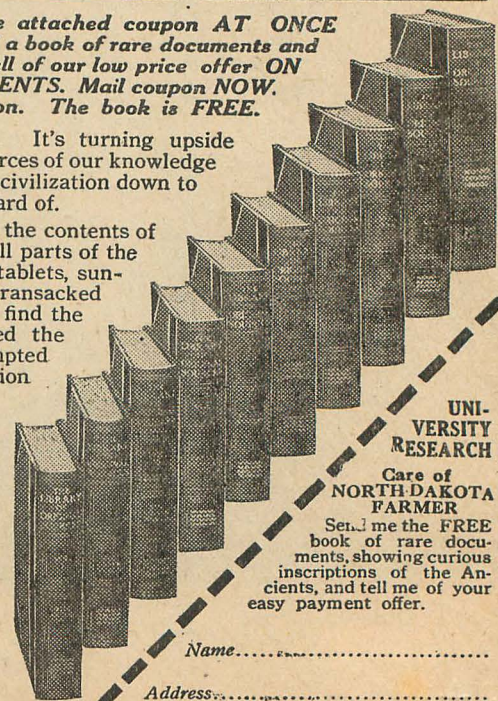
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THE NORTH DAKOTA FARMER

Vol. 18, No. 9

LISBON, N. D., MARCH 15, 1917

75 Cents a Year

Rust-Resistant Wheat

The Choice of Varieties an Important Factor in Minimizing Loss to Spring Wheat Growers.

That the growing of durum wheats is a useful precaution against heavy losses in seasons when rust prevails is indicated by the results of experiments conducted by the U. S. Department of Agriculture and the State Experiment Stations in North Dakota, South Dakota, and Minnesota. In these three States, the leaders in the production of hard spring wheat, it is estimated that the total loss in 1916 was approximately 179,000,000 bushels. Altho part of this loss was caused by wheat scab, hot weather, and other factors, it was due largely to a severe and widespread epidemic of stem, or black, rust. It is always possible that similar epidemics will occur in the future, and the use of varieties which will resist rust is, therefore, of the utmost importance to farmers.

At the present time the U. S. Department of Agriculture and the State experiment stations are working to produce rust-resistant varieties thru breeding and selection. This work, it is said, has not yet progressed far enough to be of immediate practical value to the spring wheat growers. What they wish to know at the moment is what varieties of spring wheat now available are most rust resistant.

From the results obtained in 1916 from tests in the States of North Dakota, South Dakota, and Minnesota, it appears that durum varieties give better yields under rust conditions than varieties of common wheat. The durum wheats are also high yielders in normal seasons. At the present time two varieties are in general use in this section—the Kubanka and the Arnautka. The Kubanka, it is said, is best adapted for growing in the drier, western sections of the hard spring wheat belt. The Arnautka can be grown farther east, because it is less affected than the Kubanka by a humid climate or by seasons that are abnormally wet.

Of the varieties of common wheat there are now four in general use—the Marquis, Preston (velvet chaff), Fife, and Bluestem. Of these, the Marquis produced the largest average yield, but in central and eastern

South Dakota the Preston did better. The higher yielding ability of the Marquis in comparison with other common wheats under rust conditions is said to be due, at least in part, to its earliness, which enables it to escape the rust, rather than to any inherent quality of rust resistance. The Preston yielded better than the other two varieties—the Fife and the Bluestem. It usually is slightly less injured by rust than these, which are quite susceptible. Fife was found to suffer less from rust than Bluestem. The following table shows the results of the tests in detail.

Annual and average yields in bushels per acre of 6 varieties of spring wheat grown on 7 experiment stations in North Dakota, South Dakota, and Minnesota in 1916, under the conditions of a severe rust epidemic.

Station	Durum		Common			
	Kubanka	Arnautka	Marquis	Preston	Power Fife	Haynes Bluestem
Williston, N. D.....	37.2	37.2	35.0	35.0	31.8	28.4
Dickinson, N. D.....	17.4	14.6	13.5	8.3	6.7	3.1
Mandan, N. D.....	15.3	12.5	13.8	10.7	9.1	7.2
Newell, S. D.....	13.8	10.3	8.0	5.8	6.5	5.6
Highmore, S. D.....	12.2	7.5	6.3	7.0	5.0	1.7
Brooking, S. D.....	11.6	11.1	7.2	7.5	2.9	.6
Crookston, Minn.....	12.7		5.4	4.9	2.2	2.2

The six varieties included in this table together comprise about 95 per cent of the wheat raised in North and South Dakota and in Minnesota. In 1914 it was estimated that about 40 per cent of all the wheat grown in these states was Bluestem. During the past two years, however, the acreage of this variety has decreased because experience has shown it to be a relatively low yielding variety. Fife wheat makes up less than 15 per cent of the total wheat crop in the three states, and is grown more in North Dakota than in either of the other two. Preston wheat comprises about 20 per cent of the wheat crop of the area, being grown chiefly in South Dakota and Minnesota. Marquis wheat is a newer variety than any of the preceding, having been introduced in 1913 and 1914. The increase in acreage in this wheat,

however, has been remarkable, and last year approximately one-third of the total acreage in wheat was devoted to it.

Durum wheat represents from 13 to 15 per cent of the wheat grown in Minnesota and the Dakotas. In Minnesota alone, however, only about 2 per cent of the wheat crop is durum. The Arnautka variety is grown largely in the eastern portions of North Dakota and South Dakota and in Minnesota. The Kubanka is grown in the drier, western part of the Dakotas.

TREES ON THE FARM

Good authorities at the Experiment Station state that the benefits reaped by the farmer in North Dakota from the trees planted on the farm are so numerous, that it would be a very logical step to have the planting of trees be the first thing done, on any farm, instead of one of the last things.

The following are a few of the ways in which trees serve the farmer:

1. They protect the crops from the wind, frequently saving them from being blown out of the soil by the strong winds and reducing the injury done by dust storms. For every foot in height a tree furnishes protection from the wind for 20 feet, thus trees 10 feet tall will protect crops for about 200 feet.

2. They conserve the soil moisture in many ways. Some of the most important ways are reducing the excessive evaporation by the hot summer winds, and the cold dry winds of winter and increasing the amount of soil moisture by holding the snow in the fields.

3. They protect livestock from the wind and thus enable them to produce more milk or gain more weight, than they would without protection.

4. They save fuel doubly, first by breaking the force of the winter

winds and second, by supplying fuel from the trees and branches that are cut out as the tree plantations become too thick.

5. They produce an abundance of shade wherever it is wanted for the enjoyment of the entire farm family.

6. They attract birds to the farm, which add enjoyment to life by their presence and song and most of which catch harmful insects.

7. The greatest benefit of all procured from trees is that they beautify the farm grounds and make possible the establishment of comfortable and

beautiful farmsteads on the open prairies. This is impossible without trees.

The original trees cost little, as they grow they increase both the beauty and the value of the farm home. There are many kinds of trees that will grow on our prairies. All they need is a well prepared soil before they are planted, and the same attention each year that would be given a crop of corn. In a few years they will need little or no attention but will be yielding more profitable returns with each advancing season.

corn more highly as the years go by and he raises more hogs and sheep. These classes of live stock will harvest the corn in the field without any waste.

Farm Laborers

J. H. Hulett, Taholah, Wash.

By far the largest factor involved in the production of farm products is the labor expended in their production. At the present high wage which one has now to give for competent farm labor, and with the scarcity of that labor which now confronts the farmer, it is well for him to consider, not so much how great an amount can be grown on a given area as, how large a yield can be produced at a minimum expense. The large areas of cheap land in this country, and of land even in the well cultivated sections which is yet unproductive, make the question of maximum production per unit area give way before that of what will be the maximum income from a minimum of expense.

However, I do not believe that the farm hand is getting more than is his by right. The same amount of energy directed into almost any other channel will bring him more in the way of money than he generally gets off the farm. The love of the soil is strong in most of us and the farm hand generally follows the plow or milks the cow from the sheer love of being next to the soil and helping to carry on the work, without the products of which the whole world would go hungry. So let us give the farm hand all we can, and we may rest assured that the fully competent earns all he ever gets.

With the farm laborer as with almost everything else, the best is the cheapest in the long run. Many a colt has been ruined for life, many a cow utterly spoiled, many a bull made vicious by the incompetent farm hand. While he may not do the same amount of damage when he works in the fields alone, or with some steady team upon which a cyclone would have no effect, even there, he may puddle the soil by getting onto the land before the soil is in proper condition for being worked, or he may let much needed moisture escape because he did not get out to his work at the proper time.

In general, this is as true of the farmer who does his own work as it is of the farm laborer. The farmer who works his own farm alone is as apt to be utterly incompetent to carry on that work to the best advantage or to attain the very best results as is

Curing and Saving Seed Corn Mandan Indian Method

E. W. Hall, Williston, N. D.

The Indians on the Ft. Berthold Indian Reservation in Northwestern North Dakota have raised corn longer than the oldest members of the tribe can remember. Their fields have been located all along the Missouri River thru North Dakota. One field, located near the old village where all three tribes, Mandan, Gros Ventre and Arikarees, lived together for some years, has been under cultivation for at least 72 years. Beans and squash were raised beside the principal crop, corn.

One of the important operations in Indian corn culture is the curing of the seed. The seed is picked early but no particular field selection is made. The corn is husked and spread out on corn scaffolds which are made by setting up four or six posts, forked at the top, and poles placed along the tops and then covered with willows. This allows circulation of air around the corn because willows are not solid material. The willows are close enough together to keep the ears from falling thru. The scaffold is about six feet from the ground. The corn is spread out all over the top of this scaffold and left there thru rain and shine until it is perfectly dry. The best ears are picked out for seed and put in boxes or barrels and stored in the house, or, in the old days, the corn was buried in cache holes deep in the ground. Other supplies such as beans, squash and the feed corn also buried in these cache holes.

The principal thing in this Indian curing process is getting the corn perfectly dry. Practically every Indian house at the present time has one of these corn drying scaffolds in front of the house and this scaffold has always been part of the home's equipment.

The writer asked the old Indian man how he tested his corn. He said that he did not test it because he knew it was good and would grow. It always did. The stand in every Indian field proves his statement. It is very rare to find a missing hill. Dry seed is the reason for this. Even the fields in the summer of 1916, when the year previous, 1915, was a poor corn year, were practically perfect stands.

The Mandan Indians have a "Keeper of the Corn." A daughter of their former chief holds the office at present and it is her sacred duty to preserve the seed from year to year. She cultivates her field very faithfully and cures the seed and preserves it very carefully. This is a splendid example to the white man of the value of good seed corn cared for carefully.

The exact method used by the Indians in curing seed may not apply to our dent corn as the dent contains so much water and does not get as ripe or dry in the field, as the flint corns, but the principal applies to any corn, that is to get the seed dry. There is no question but what there would be a much better supply of good seed corn in North Dakota from home grown fields, and good seed too, if the farmer would go thru his fields and pick his corn in a wagon and spread it out on scaffolds to dry during the fall. It certainly is far superior to the all too common method of picking seed corn out of the shock or bundle during the fall and winter, or not saving seed at all and depending on the seed firms for seed that may be shipped in and is not raised in the immediate locality.

Much can be learned from Indian corn culture and the North Dakota farmer is going to prize the Indian

the hand who works for wages. And perhaps the farmer is a little more likely to prove incompetent for he is his own boss and comes and goes as he pleases while the hired man generally has some one who will, at times, give him directions which if followed out will avoid most of the mistakes made by the farmer who does not look to some other for directions about his work.

When a man has been born with one hand hold of a plow handle, the other hold of a cow's teat; with one eye on the weather, the other on the soil beneath his feet; with the reins about his shoulders and his mind busy with problems concerning the gaining of a livelihood, it is difficult for him to understand just how he is to profit by the study of books. His is "health which mocks the doctor's rules, knowledge never learned of schools." He can handle an ax or a hoe or a plow and can break a colt because he has seen others do the same and early learned these arts. He does not realize the difference between the skill which comes from practice and the knowledge which comes from study. Too often, he has been nowhere to have the fact forced upon him that following the same lines of work to which he is accustomed is like the wheel traveling in a groove. It does not get anywhere.

In order that we may understand the present high wage demanded by competent farm laborers, let us consider their case so far as remuneration is tendered him for devotion to this work. The hired man must work ten, twelve, aye, sometimes sixteen hours each day. Let him who would question the severe strain he is called upon to withstand but follow in the footsteps of the ordinary farm hand for twelve hours and then pass judg-

ment on how tired the farm hand must get at night. For this work he is paid thirty dollars per month, with board or if married, a house and garden spot is furnished him together with the season's fuel and the use of a cow. Perhaps if everything were counted he would get \$600 per year.

Let us look for a minute at his brother in the city. He may live where he chooses for street cars will carry him to his work and home at night if he wishes to get in some other locality than that in which his work is situated. He has no work on Sunday, he has none of the little chores which often keep him two or three hours after what is usually called work on the farm. He gets all his pay in cash. He can if he has the amount of skill that is demanded from the farm worker, get one hundred dollars per month for that skill directed along any one of a score of lines in the city.

In the one case he gets one and two-thirds dollars per day; in the other, three and one-third dollars. This is supposing that he is able and willing to give of his brains, his knowledge, his power directed along intelligent lines.

If the individual man is a social being above all else, he will seek the city where he can work side by side with his kind. If he thinks of the welfare of the coming generation, if he considers the independence of farm life, if he is not wholly unreliable and untrustworthy, he will think twice before leaving the open country for the city. There is no doubt that more money is made in the city, but there is much reason to believe that the farm laborer, taken one year after the other, has made more progress of the right sort than his city cousin.

Personally, I consider the much-talked about isolation of the farm a myth. I have been on the broad prairies with no house in sight for

mile after mile. I have lived thirty-five years on a farm or in close touch with rural life. But nowhere have I felt the aloneness that comes to the man who is unused to crowds when he has to live in a strange city, especially if that city happens to be of some size. Speaking of lonesomeness, there in the city is where it comes to a man with all its strength, with all its yearning. In the country, the people with whom you meet are for the most part, friends; in the city, the people with whom you meet will crowd you down and walk over you if you do not have the backbone to defend yourself.

TRAINING FOR RURAL LEADERSHIP

"Training for Rural Leadership" is the subject of a comprehensive discussion of rural needs which is written by John M. Gillette, Ph. D., Professor of Sociology in the University of North Dakota, and which appeared in the Annals of the American Academy of Political and Social Science.

The attitude of the rural population concerning itself has run the course of three stages. The first attitude was the passive one of taking dogmatic teaching for granted and allowing things to drift. When the rural population arose in its full significance, almost the entire emphasis was placed on organization, so that reorganization became the shibboleth, and the eco-

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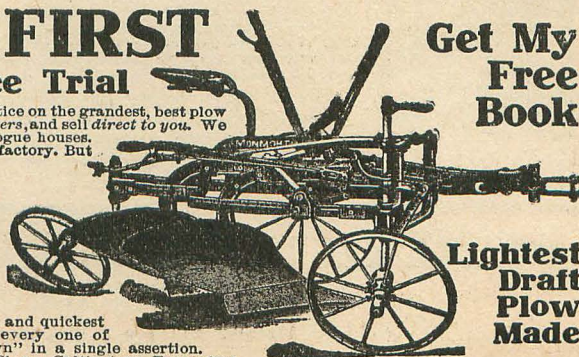
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conomic factor received almost exclusive consideration. But with the passage of time the farmers have become wiser and, imbued with a larger degree of humanistic sentiment, they are now discussing what sort of institutions will turn out the best men and women. And it is very significant that the perception has gradually arisen that a rural leadership is an indispensable means to the attainment of permanent improvement.

The productive rural leadership must have the power of initiative, organizing ability, sympathy with human aims, trained intelligence, and vision or outlook. The function of the leader is to supply creative power, see the advisability of appropriating

plans that have worked out well in other communities for betterment. Beyond this there must be a reservoir of energy that speeds the work, and a sympathy with life which makes the undertaking seem desirable.

It is a common saying that the country lacks leadership, and this is no doubt true of the city as well. The country has quite as many leaders comparatively speaking, as has the city. But as in the case of the potentially talented the problem is one of arousing, educating and keeping these persons for duty in rural communities.

Several kinds of agencies must contribute toward supplying a leadership of the right kind. Our institutions of higher learning must devote more attention to training men and women for country service. Much is being accomplished by the county agent and the cooperative demonstrators, which the agricultural colleges have educated for country service. Many states have county and city high schools which are giving instruction in agriculture and farm subjects; summer chautauquas, farmers' clubs and institutes and kindred organizations are helpfully contributing to the establishment of a constructive point of view concerning farm life and its problems.

However the consolidated rural school, with communityized building and equipment, a corps of efficient teachers, a teacherage, experimental plot, graded and ruralized curriculum, and having high school facilities as an organic part of the socialized course of instruction, possesses the greatest power of appeal because it is articulated with actual farm life and because it is within the reach of all. Such an institution should stimulate the talented class toward higher achievements, tending to command the per-

manent interest of some members of that class in farm life, and develop the abler members of the imitative group up to the level of their highest efficiency. It doubtless would accomplish for the less able individuals all that any training agency could hope to do for them.

WHY THE BOY LEAVES

Here are some suggestive questions asked by "The School Journal and Educator," that are pertinent to the topic: Back to the Farm. If farmer parents would take the hint presented in these questions, there would be no such problem as getting population to flow back to the country—at least it would be solved in a great measure.



A Partner on the Ranch.

1. Did you ever know a boy who owned the pigs and the lambs, but whose dad owned all the hogs and the sheep?
2. Did you ever know a boy who didn't like to have a room of his very own with a stove in it, so that he could stay there even on a cold night?
3. Did you ever know a boy who didn't like to have a horse and buggy of his own? How did you like to ask

"I read your paper and read it all."
—W. F. A.

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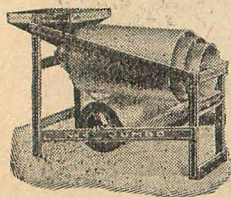
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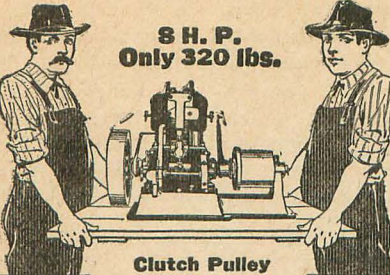
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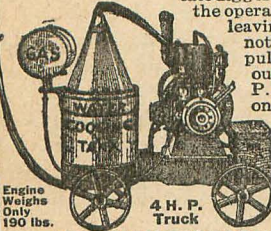
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4. Did you ever know a boy who didn't work better when he had a share in the crop or when he had one field with which to do as he pleased?

5. Did you ever know from being a boy, how the townworker boy was envied because he had a room that was his very own; a room in which he could leave his trunk and good clothes and know they would be unmolested?

6. Do you realize that the way you felt under these conditions is about the way all other boys feel?

7. Did you know that time and thought spent on boys will pay as well as time and thought spent on pigs, cows and sugar-beets?

We know a concrete case. A boy of twelve is cultivating a truck-patch which is his very own. He grows many kinds of garden vegetables, sells them, and the money goes to his own bank account. So far this young lad has banked \$125! Does he like the country well enough to stay there? He is planning to make a scientific farmer out of himself. Already he knows a great lot about scientific farming. He is not neglecting his regular schooling either. Oh, no, he's not a premature money-grabber. He is just a boy, just like other boys; except that he has great joy in his work on the farm, and has a father who is wise in his management of boys—very

wise. This is a true story. We can give names, locations, plans and specifications. Do you have boys on the farm? "Go thou and do likewise."

AGENTS WANTED

In small towns and country. Take orders for fruit and ornamental trees. No outfits for sale. Start you absolutely free.

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Ten of the Finest Vegetables **FOR 25c** we will mail one large packet each of the following Vegetables in a coupon envelope. This coupon will be good for 25c worth of seeds selected from the Catalog on any other order for 75c worth of seeds.

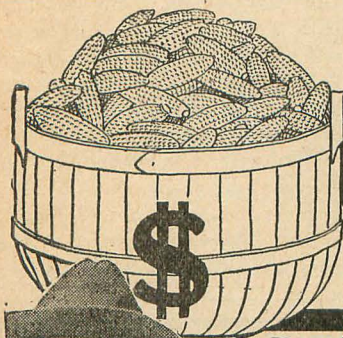
Bradley's Earliest Radish; crisp and brittle
Bradley's Early Egyptian Turnip Beet; blood red
Bradley's Earliest of All Lettuce; very crisp
Bradley's Imp. Early Jersey Wakefield Cabbage
Bradley's Earliest of All Blood Red Tomato
Bradley's Best Sweet Corn; delicious
Bradley's Perfection Long White Spine Cucumber
Bradley's Mammoth Prizetaker Onion
New York Imp. Spineless Egg Plant
Improved Mammoth Ruby King Sweet Pepper

25c buys all the above and in addition we will send one large packet "Spencer Sweet Peas" a mixture of 10 varieties; regular price 15c.

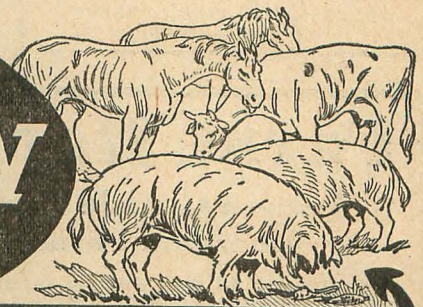
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Your Breed of Poultry
It Will Pay You



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If you SAW thieves robbing you of wagon loads of your \$1.00 corn, you'd stop them quick! But, right now UNSEEN thieves—thousands of them—are not only stealing your feed, but imperiling the very lives of your animals. I refer to the feed-eating, blood-sucking, disease-breeding worms. I'll show you how to rid your animals of these expensive pests; how to STOP the feed loss and have thrifty, healthy, profitable live stock. I'll show you how to do it with

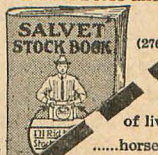
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My new book tells everything. Fill out and mail the coupon and I'll send the book FREE. I'll tell you also where and how you can get enough SALVET to feed your stock 60 days and have your money refunded if it fails to do all I claim. Mail the coupon now. Address

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THE FEIL MFG. CO., Chemists, Dept. 141 Cleveland, Ohio



PRICES	10 lb. pkg.	\$0.75
	20 lb. pkg.	1.25
	40 lb. pkg.	2.25
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300 lb. pkg.		13.00
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Dealers sell SALVET at above prices, but in the far West and South they charge a little more, because freight charges are more.

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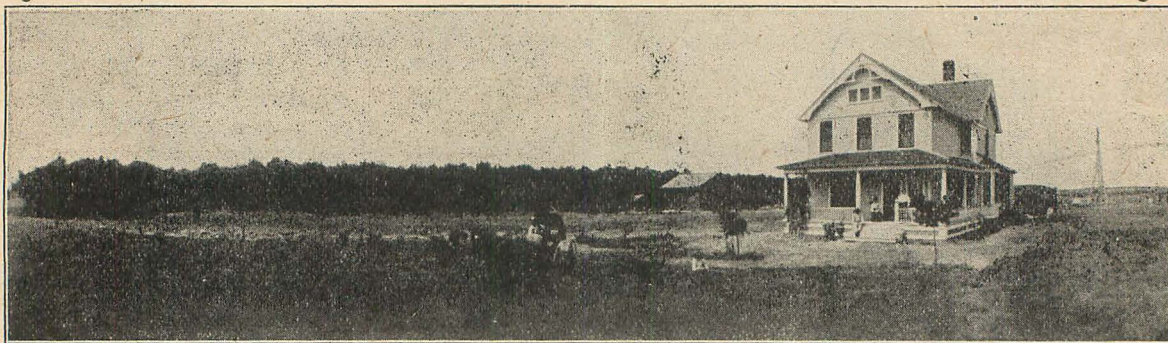
His Post Office is.....

VALUABLE HINTS FROM THE EXPERIMENT STATIONS Moisture for Garden from Wind- break

A windbreak will stop a lot of snow which largely soaks into the ground when it melts. This makes a good place for a garden and for small fruit.

for most crops. But beyond this strip, there will be four or five rods in width and in many cases more which will have a better moisture supply than if there were no trees. The windbreak will also protect whatever is grown in this belt. This protection enables crops to grow better and es-

successful when one bushel of oats per acre is seeded with the two bushels of peas. The oats will help to support the pea vines and the crop can then be harvested better, either by the hogs or with a binder. If the crop is to be pastured thru the summer months grain should be fed to the



The Protection of a Windbreak Enables Crops to Grow Better, Especially Fruits and Vegetables

The snow may be hard on tree fruit, breaking off branches in settling. The roots from the trees will extend out to a distance at least equal to the heights of the trees which means that the strip next the trees will not be good

pecially vegetables and fruits.

Canadian Field Peas as a Hog Feed

A few enterprising farmers in North Dakota have found that the Canadian field pea grown as a hog feed is an immensely profitable crop in some parts of the state. Usually the Canadian field pea does not make a satisfactory growth in the heavy soil of the Red River Valley but in most of the soils in the central and western part of the state the Canadian field pea will make a very heavy growth. It may be seeded alone at the rate of two bushels per acre and pastured by hogs when partly grown or it may be allowed to mature and be used as a fattening ration either by allowing the hogs to harvest the crop themselves or by threshing the crop and feeding the peas as part of the grain ration. Usually the crop proves a trifle more

pigs in addition. A field of peas seeded beside a patch of corn that is to be hogged off will add considerable to the ration while the hogs are on the corn. One of the objections to the use of peas as a forage for hogs has been the high price of the seed. It is, therefore, advisable to grow some seed each year rather than to depend upon buying it.

Raspberries for North Dakota

Some varieties of raspberries do well in North Dakota. The Sunbeam is the hardiest, but such varieties as the Loudon, Minnetonka, Ironclad, Turner and Miller are also quite hardy. By laying down the less hardy raspberries in the fall and covering them with soil, they will winter in fine shape. Any variety will come thru the winter in better shape when covered in this way than when left exposed. Set the plants four feet apart in the row and do not have the rows closer than six feet. One trouble with raspberries is that they send up too many shoots. The number must be kept down or but few berries will be produced. The raspberries should be well cultivated

PROFITABLE Pine Planting

Experimenting has been done. Both federal and state officials have carefully tested the most promising trees for prairie planting during the past 26 years and now large areas of the sand hills of Nebraska are covered with Jack Pine. Planters claim this plantation is worth \$100 per acre as soon as established. The experiment stations at Brookings, S. D. and Dickinson, N. D., report this species doing remarkably well.

It grows better on the prairie than in its native woods. Saw-logs were grown in twenty years in Nebraska. There is no other tree of equal value for prairie windbreaks and groves.

AYRES' JACK PINE NURSERY
Kimberly, Minn.

Farm Hands Wanted

**Western Canada Farmers Require 50,000
American Farm Laborers AT ONCE!**

Urgent demand sent out for farm help by the Government of Canada. Good wages. Steady employment. Low railway fares. Pleasant surroundings. Comfortable homes. No compulsory Military Service. Farm hands from the United States are absolutely guaranteed against Conscription. This advertisement is to secure farm help to replace Canadian farmers who have enlisted for the war.

A splendid opportunity for the young man to investigate Western Canada's agricultural offerings, and to do so at no expense. Only those accustomed to farming need apply.

For particulars as to railway rates and districts where labor is required, or other information regarding Western Canada, apply to

W. E. BLACK, Clifford Block, Grand Forks, N. D.
Authorized Canadian Government Agent

Lumber, Posts Shingles

Get our low delivered estimate on your house and barn bills. You inspect lumber before paying.

G. R. KIRK CO.,
Dept. F. - Tacoma, Wash.

as grass and weeds will cut down the berry yield if not entirely cut it off.

Protection from the wind is helpful in raising berries. A good windbreak not only breaks the force of the wind but it also gathers a lot of snow that waters the ground when it melts.

Gooseberries

The gooseberry is a native of North Dakota. Many of the cultivated varieties as the Pearl, Houghton, Carrie, Red Jacket and Josseylin do well in the state. It is necessary that they be given good care, as good cultivation, freedom from weeds or grass and the removal of some of the old canes. When too many canes are allowed to grow, the strength goes to making canes instead of into berries. The most and best fruit is produced on the young canes.

Increasing Butter Production

In 1910 the cows averaged 132 pounds of butterfat and in 1916 427 pounds. This increase in production was secured by a member of the Breeding Circuit at New Salem. It was done thru breeding up the cattle and thru feeding. The average production per cow for each year was 1910, 132 lbs.; 1911, 140; 1912, 189; 1913, 211; 1914, 282; 1915, 292; 1916, 427. In 1916 each cow produced more than three times as much butterfat as in 1910.

Starting the Soft Horse at Heavy Work

When the soft horse is started at heavy work, the shoulders should be given a good deal of care. The horse will need frequent breathing spells and at these times lift the collar so as to give the shoulder a chance to cool and to dry. When it becomes moist from sweat, it will become sore much quicker than if dry. The collar should be kept smooth, if any incrustations form on it, scrape them off. Care should be used in making sure that the horse has a collar that is fitted to its shoulders. A misfit collar is apt to lead to shoulder trouble. When starting the horse at hard work, watch its shoulders and neck too, carefully.

Grimm Alfalfa Seed Producers' Cooperate

The growers of Grimm Alfalfa seed in North Dakota are cooperating in marketing their seed.

The seed is now being sent to Fargo where it is being cleaned and scarified. No seed is taken that contains seeds of noxious weeds. One member has 50 bushels of seed but when tested at the seed laboratory at the Agricultural College it was found to contain mus-

tard so it had to be rejected. The result is that this member will have to sell his seed for about half what it would sell for thru the association.

B. Byron Bobb, president and W. R. Porter, secretary of The Grimm Alfalfa Producers' Association of North Dakota have worked out a system for having the Grimm alfalfa fields registered a good deal the same

as is done for purebred livestock and they are further insisting that no seed will be sold by the association that has any noxious weed seed in it.

This association is being watched with a good deal of interest in the expectation that it will work out methods and show the possibilities in co-operation for the growers of other crops.

Anthony Fence

Under stress of action each wire within a considerable radius is brought into play, affording, to an extraordinary degree, the resistance of a flexible wall of steel—due to the perfectly balanced woven fabric, in which each wire is drawn under equal tension with machinery of special design. Thoroughly galvanized.

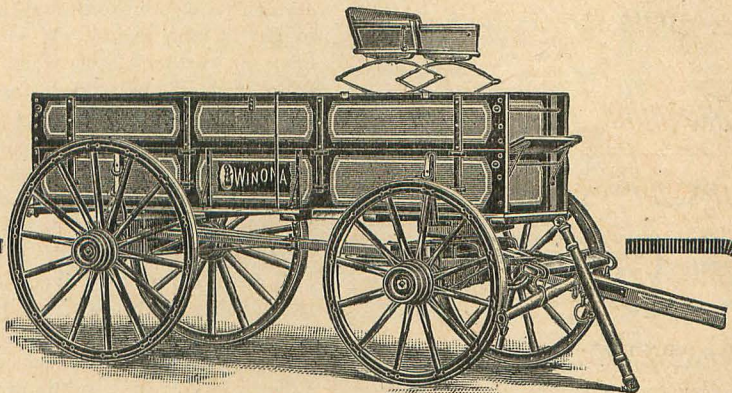
American Steel Fence Posts last a lifetime. Hold fence secure against all conditions.

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Strongest and Lightest Running

THE Winona is the strongest, lightest-draft farm wagon you can buy. Axles won't break—rims won't split—hubs won't check—boxes will stand the siege of steady use. If you want a fine-looking wagon that will give you uncommon length of service, see the Winona.

WINONA FARM WAGON

BUILT from tough, solid, "bone dry," seasoned timber—ironed with extraordinary care. Outer Bearing Axles, full Clipped Gear, Riveted Bent Felloes. Strongest Skeins, Poles and Hounds. Boxes extra cleated and braced. Comfortable Seats. Durably painted with best quality paints.

Write for Catalog F showing many exclusive features of the Winona.

WINONA WAGON COMPANY, Winona, Minn.

POTATO DEPARTMENT

H. O. Werner, Secy. N. D. Potato Assn.

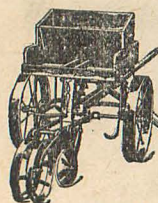
TREATING POTATOES FOR PREVENTION OF DISEASE

H. L. Bolley, N. D. Exp. Sta.

It is gradually being made clear that North Dakota lands are extremely suitable for the growing of fine quality of potatoes, especially for southern markets for seed purposes. It is extremely important that the grade of these potatoes should be maintained so that market conditions may be met with increasing reputation for this region.

While the lands are virgin or new to cultivation, it is probable they contain no form of potato diseases. The diseases of potatoes, like weeds in other crops, are brought along with the seed into the new country. Potato scab is one of the most common of the fungus pests of potatoes, and when once introduced into the land stays for a number of years and only intensive cultivation can remove it.

Write today for Catalog of
Northern Grown Seed Corn
D. D. SIMMONS CO.
The Moorhead Seed House,
Moorhead, Minn.



"More Potatoes"

From ground planted secured by use of The **KEYSTONE POTATO PLANTER** than by any other method of planting. Work perfectly accurate. A simple, strong, durable machine. Write for CATALOG, price, etc.
A. J. PLATT, MFR.
BOX 14 STERLING, ILL.



CROOKSTON TANNING CO.,
Dept. 21 : Crookston, Minn.



You can be sure of the highest possible price for

Hides, Furs, Pelts, Etc.
if you ship to the old reliable
Northwestern Hide and Fur Co.
Est. 1890

Minneapolis, Minnesota

Send for quotation price list and catalog of Trappers Supplies. We give a good luck watch for free for every shipment or purchase of \$5.00 or over. Reference: Any bank in Minneapolis

Therefore, prevention is the most important thing. The best way to prevent potato scab and indeed all of the other potato diseases which are now known is to keep up a systematic and consistent system of crop rotation. Do not put potatoes on the same land more often than once in every three or four years. Try to have another kind of cultivated crop on this land at least once between potato crops. Corn is most satisfactory for this purpose. Having kept the land clean and free from diseases and weeds by proper tillage and cultivation, the next subject is to properly select the seed. The same type of careful selection and treatment which will keep the land free from potato scab will also allow you to keep it free from the rots of potatoes which are introduced in the soil. There are several of these different kinds of potato rots and blights but the same process of seed selection works in all cases.

Selecting the seed: There are two ways to select seed, (1) The careful and most systematic way is to select it from the field, selecting the tubers from the most healthy normal looking hills or vines and always taking the ones which produce the shape of tuber that you want to grow; (2) Selecting from the bin: In selecting from the bin, you can make a good selection only when you have a pure variety, as, for example, Early Ohio. It is very wise to select a variety which the market demands and Early Ohio or Triumph or Irish Cobbler seem to be about the chief varieties that the eastern and southern markets expect to get in this region. If you already have a pure variety, when selecting your seed in the spring for planting purposes, select only tubers which are of nice even size and of the shape you want to grow. Select smooth skin fellows. The skin should be free from any indication of checks, scabs or discolorations.

How to Treat the Tubers to Prevent Introducing Scab, Rot, or Blight into the Soil: Make up a solution of corrosive sublimate. Use ten ounces of pulverized corrosive sublimate for each sixty gallons of water (one ounce to each six gallons). Have the druggist pulverize the powder for you. Dissolve the corrosive sublimate in a small amount of hot water so as to insure a thoro dissolving. Dip the potatoes in this solution one and one-half hours. Throw them out on a drain board and after they are dry enough to handle, cut as usual.

Caution: Corrosive sublimate is a poison. Keep the solution away from stock or children.

Many of our farmers know how to

POTATOES

9 4/5 Bu. from 1 lb. of Seed

Three potatoes, planted in 56 hills in Huron Co., Ohio, yielded this amount. The seed, the planting, and the crop harvested are matters of County record. You can do as well or even better by following my instructions. It is not a matter of variety of seed, or soil, or fertilizer used, important as each of these matters is, but it is the selection and cutting of seed and treatment. It was these elements that enabled me to produce the yield of 552 lbs. of potatoes from one pound of seed. Full information as to how it was done, the seed used, the soil, the fertilizer employed, the tillage and the methods of producing this large crop will be sent for One Dollar. Send your order now and grow more potatoes from less seed. Any one who feels too poor to spend a dollar to learn how to increase the yield in raising potatoes send me your name and address. Planting time is near. Send your order today and raise more potatoes from less seed.

A. R. Gibson, Brookfield, Ill.

A\$50 Saddle, \$40.60 Cash



The Celebrated
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Saddle.

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Mfrs. of Justin's Celebrated Cowboy Boots. **NOCONA, TEXAS**

As the Twig is Bent

Uncle Will's Magazine furnishes clean and attractive reading for boys and girls. 50 cts. a year. Send for free sample copy today; it will pay. **THE ROTARY, LISBON, N. D.**

use formaldehyde solution. It is not quite as effective as corrosive sublimate, and we recommend the corrosive sublimate solution to all growers who are going into the potato business as a general crop. Formaldehyde treatment, however, is very satisfactory. In this case, use one pound of formaldehyde to thirty gallons of water and dip just as in the case of corrosive sublimate for one hour and thirty minutes (before cutting).

Selecting to escape rot: While cutting, there is one or two types of rot which may be recognized by looking at the cut pieces. Discard any diseased tubers which show any sign of discoloration, yellow, brown, or any color other than the normal potato color.

Spraying the Vines: The complete method of getting the best yield from potatoes is proper crop rotation, proper seed selection, proper seed treatment and proper spraying of the vines. If any one of the steps is neglected, you will not get as good yield as you should. Therefore get a proper potato spraying outfit and spray the vines thoroly once about two weeks after they are up and about every ten days during the rapid growing season, especially if rain falls to wash off the solution. Use the so-called Bordeaux Mixture with Paris Green added to kill the bugs.

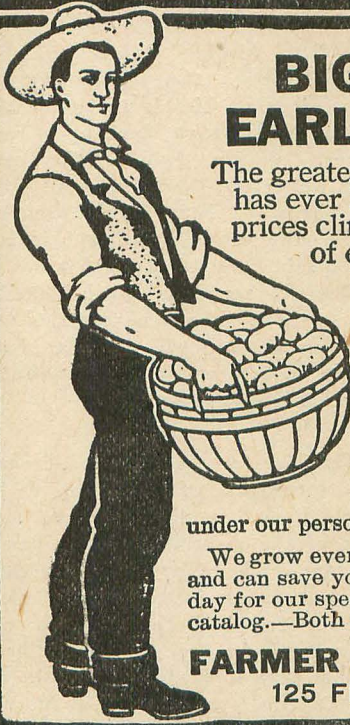
North Dakota Farmer:

Do you think potatoes will do well on ground that had flax on the first year, wheat the next and oats the third year? I did not plow it last fall. Would you put manure on it before you plow it if it is put to potatoes. Kindly let me hear your advise.

O. L. O. Alkabo, N. D.

Potatoes will do well on ground that had flax on it the first year, wheat the next and oats the third. It will be an advantage to apply manure. A good way to apply it will be to put it on and disk it into the soil, then when the land is plowed the manure will be thoroly mixed with the soil. In case the manure is not mixed with the soil, and forms a layer, it will interfere with the growth of the potatoes. It must be remembered, however, that in case potatoes are scabby, manure will likely make them worse. But then treat the potatoes for scab, it can be done by soaking them for two hours in a formaldehyde solution made up of one pound of formaldehyde to thirty gallons of water and soaking the potatoes in it for two hours. The manure should also be free from scab. One way that scab comes into manure is if

cattle are fed scabby potatoes or peelings from scabby potatoes. The neighborhood where land is comparatively new.



BIG MONEY IN EARLY POTATOES.

The greatest Potato famine the Northwest has ever known is bound to keep Potato prices climbing all winter. The producer of early new Potatoes will find the biggest demand ever known for his crops, and get his own price.

TAKE THIS TIP—Secure the **best, cleanest and earliest** seed stock obtainable and be prepared to **cash in** when the time comes.

GET OUR NEW CATALOG for full descriptions and illustrations of all the earliest and most productive varieties, grown from treated seed, under our personal supervision.

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North Dakota Farmer

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Remittance may be made by draft, check, money
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Vol. 18 MARCH, 1917, No. 9

Whatever your opinion of the laws enacted, you must admit that the state never had a more sober, earnest and industrious body of legislators.

Parents, do you realize that the literature entering your home helps mold the character of your children? Therefore, should not every periodical they read be clean, and uplifting? The father and mother have themselves to blame if the children, after imbibing the spirit of envy, malice, spite and slander that permeate some publications, become envious, malicious, revengeful enemies of society.

It is a mistaken idea that flax is "harder on land than wheat." Wheat and flax take from the soil about the same amount of plant food. Fortunately flax wilt will die out after five or six years, hence there will be little danger from this disease if flax enters into the rotation every six years. Should wilt-resistant flax be seeded, five years at least should elapse before flax is again sown.

We have devoted considerable space on the cover page this issue to the study of the temperature of the incubator and a comparison between the white and the brown egg. It will pay those who use the incubator to study carefully the results of these experiments, which, altho carried on in a distant state, are exceedingly valuable and may perhaps explain the failure of many a batch of eggs and prevent considerable loss at this time of high cost of egg production.

At this writing Spring seems in no hurry to dismiss "lingering" winter. Very few will be able to begin seeding before the middle of April, which means a late harvest, unless Old Sol speeds up, as he is capable of doing. Unfortunately the soil will not have all the benefit of the large amount of snow, for it will disappear suddenly

after it once starts. The prudent farmer will now see that all seeding machinery is in good repair that he may use to good advantage every moment of time.

A little brother walked with hesitating step to the young man who was calling on his big sister and said, as he held out a handful of navy beans, "What's them?" The young man answered, "My little lad, those are beans." "There now!" exclaimed the young chap, taunting his sister, "You said he didn't know beans."

The wise farmer of North Dakota is the one who "knows beans" this year. The poorest soil will do. At present prices an acre or two can not be put to much better advantage.

The last few years have witnessed the formation of co-operative bull associations. In this way the members of the association secure five or six high-grade bulls; then by dividing the association into as many blocks and rotating the bulls every two years, they have the use of a much better animal than it would be possible were each member to have one of his own. Such an association, by establishing rules as to sanitation and disease, may be the means of preventing the spread of contagious abortion, tuberculosis, hog cholera, and other contagious diseases. The cost to each member of a twenty-member association with five blocks for the use of five \$250 bulls of pure breed would be the same as if each member were to own a single \$75 scrub. Such an association would be valueless to the farmer who is satisfied with scrub stock, a class that is slowly disappearing.

IT ALL DEPENDS

Have you heard any one criticise (to use a mild term) the man who holds on to a million bushels of potatoes, thus raising the price to the consumer? Does he differ materially from the farmer who still holds in his potato cellar a thousand bushels?

Not many months ago a farmer took some wheat to an old-line elevator, which he had often denounced for having "robbed the farmers." As the wheat buyer was emptying the last sack, what should appear in the center of the sack but a stovepipe filled with sand. The farmer had forgotten to remove the stovepipe after filling it with sand. "Caught with the goods" the farmer eagerly agreed to the dockage without a murmur, and, with change of heart, he has taken his grain to that elevator ever since.

Again, within the past month, one of the most radical opponents of the private ownership of mills and elevators went to town with a load of wheat and sold it at the flour mill. As was his wont he began to castigate the legislature for betraying the farmers and to condemn the methods of the millers in cheating the farmers thru false grading. Having fired several hot shots at the miller he went to the ware-room and bought two 49-pound sacks of flour, for which he was to pay 15 cents more than for a single sack of 98 pounds. On his return to the office the miller asked him how much flour was to be charged to him. He told the miller to deduct for 98 pounds. Not until he was gone was it discovered that he had taken two half-sacks instead of one whole sack. It was only a matter of 15 cents, but the man who will defraud a miller out of 15 cents is just as much a thief as the man who unfairly grades the wheat at the elevator or mill.

Still again, a man who has denounced the "rascality of the big mills for buying 'Feed D' wheat and then selling it to the public as patent," went to a dealer to purchase flour. Being asked which kind he wished, that made especially for the farmers or a patent, he looked all around to see that none of his neighbors heard and whispered, "Give me the patent." The question arises: How sincere was he in his denunciation of the mills? Possibly he stood in awe of the cook.

The question arises, What confidence are square dealing people to place in such professed reformers? To be sure they are no worse nor better than the bankers, grain buyers, teachers, merchants, or preachers of their class, but it is unfortunate that the cause of the farmers should be jeopardized by the wiles of such deceivers.

PRIZE PUZZLE NO. 2

A publication is judged largely by the class of its advertisers. Read our advertisements. To the one sending in before April 20 the correct list of advertisements from which the following sentence has been formed and will send us proofs of having replies from five of them, we will enter, renew or extend the North Dakota Farmer one year and send for one year the Illustrated Review:

It is delicious to our practical common sense to last a life time without the annoyance and expense of seeing this startling story, but only to men working on a mixture of ten varieties my new book tells something every farmer should have for prairie windbreaks.

Livestock Department

FARM AND STOCK NOTES

N. J. Shepherd

It takes fertility to grow weeds.

The very fat chubby sow should be avoided as a breeder.

Allowing seeds and chaff to get into wool depreciates its value.

The value of a draft horse is much enhanced if he is a good walker.

When a farmer most needs quick and profitable returns is when he is in debt.

The kind of action that is natural to the animal is the kind that stays.

The weakest point in a horse is usually a pretty good indication of the value of that horse.

The only accurate way of discovering the unprofitable cow is with the scale and Babcock test.

One of the secrets of successful dairying is close attention to the wants and requirements of the herd.

In the production of good strong wool the health of the animal is just as essential as proper feeding.

Good feeding is economical feeding and both of these are scientific feeding because science is only applied common sense.

In selecting a stallion for breeding discard the sluggish, awkward stallion as well as the big-headed, pig-eyed, slouchy one.

System on the farm may be defined as the orderly attention to all details that are essential to good management.

All hogs of the same breed are not alike and it is this fact that makes improvement of any breed possible.

While corn is the best fat producer, young growing pigs to thrive best must have other foods for making bone and muscle.

Sheep are economical producers, requiring less than the average number of pounds of feed for the production of a pound of gain.

Irregularities of feeding and milking, exposure to heat, cold, or storms

tend to reduce both the quantity and quality of milk production.

Care and prompt attention at the right time to what may seem small matters add much to the thrift and growth of the lambs.

In order to reduce the cost and maintenance have no more fencing than is necessary for the economical management of the farm.

The feet of the growing colt should be watched and if they do not wear evenly the elongated portions should be pinched off.

Milk scales and the Babcock test make it possible for the dairyman to ascertain the relative production of a dairy cow at a comparatively small cost.

It is the unproductive things—things that are neither growing nor producing—that keep the fellow down who is trying to pay for his farm.

If your hog has a thin ear you have a thin hide all over your hog, which is one of the very best features.

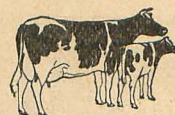
When milk or cream is to be kept in the best possible condition it is best to reduce the temperature to within a few degrees of freezing.

The best system of farming is that which gives the largest return for the labor and capital invested and still leaves the soil in condition to produce maximum crops.

No other animal will give so great a profit pound for pound as sheep and the farm will be better, cleaner and more fertile for their being upon it.

The greater cost of producing meat on the older animals is owing to the large amount of the food of maintaining, so it is essential to keep the young animals growing right along from the start.

Nearly all the chemical and bacteriological changes in cream take place in the serum or milky part; therefore the richer the cream the better it will keep, other conditions being the same.



Purebred Registered HOLSTEIN CATTLE

Purebred registered Holstein cows hold all records, and the bright and shining high marks of production which enthrall Holstein owners and amaze the world are, forty-four and forty-two hundredths lbs. butter and 808.5 lbs. milk in 7 days; one hundred seventy-one and four hundred ninety-seven thousandths lbs. butter and 3,242.6 lbs. of milk in 30 days; and fifteen hundred and six and thirty-six hundredths lbs. of butter and 31,239.4 lbs. of milk in 365 days. The Holstein cow in her rapid forward march of progress is so profuse with remarkable achievements that even the above wonderful figures are "subject to change without notice."

Send for FREE Illustrated Descriptive Booklets
Holstein-Friesian Association of America
F. L. Houghton, Sec'y Box 267, Brattleboro, Vt.

ENVILLA STOCK FARM

Cogswell, N. D.
Will quote you special prices at any time on Angus Cattle, Feeding and Breeding Sheep, Shetland Ponies, Duroc Jersey Hogs, Wolf Hounds, Collies, Rat, Bird Dogs and other breeds, Angora Cats. All varieties of chickens, turkeys, geese, ducks, guineas, pheasants, rabbits, ferrets. Pets Live Foxes, Skunks, Mink and Badgers.

Bixby's Red Polls

My herd bull, J. D. Merryweather, No. 24396, is the son of J. D. Millie, A. R. Grand Champion cow at Minnesota and Montana, in the 1915 show-ring and won the milk and butter contest with Guernseys, Jerseys and Brown Swiss competing with records of 600 pounds butterfat. J. D. Millie weighed 1280 pounds at thirty months old, and is full sister to the World's Champion two-year-old heifer. J. S. BIXBY. LISBON, N. DAK.

HIGH GRADE Holstein Calves

12 HEIFERS 3 BULLS
Beautifully marked, 15-16 Purebred, 4 to 6 weeks old, \$18 a piece, crated, from heavy milkers. Safe delivery and Satisfaction Guaranteed.

FERNWOOD FARM
Wauwatosa, : : : Wisconsin

JEAN DU LUTH FARM
A. R. Guernseys and Red Polls!
Our Motto:
"Correct Type Together With High Production"
Our Herds number 270 pure bred
Write for pedigrees of our \$200.00 bulls
Jean Du Luth Farm
Geo. P. Grout, Managing Owner
Duluth : : : Minnesota

Holstein Calves

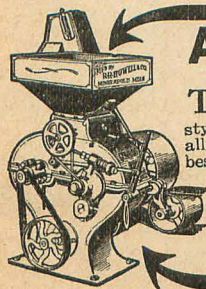
10 heifers, and 2 bulls, 15-16ths pure, 5 weeks old, nicely marked and from heavy milkers \$20.00 each, crated for shipment anywhere. Edgewood Farms, Whitewater, Wis.

CLASSIFIED ADS.

One Cent a Word

Small advertisements will be classified under appropriate headings at the low price of one cent a word for each insertion. Cash must accompany all orders. Each initial or number must count as one word. TRY IT HERE.

25 Shorthorn Dairy Cows due to freshen soon 40 heifers; young registered bulls; choice shorthorn and holstein calves. Time to responsible parties. Paul Johnson Co., South St. Paul, Minn.



A ROLLER FEED MILL

WILL GRIND A WAGON LOAD OF FEED FOR 10 CENTS.

THIS is the Famous Howell Roller Mill you have heard so much talk about. The new improved mill for the scientific grinding of grain. Old style Burr and Stone Mills are out of date. Thousands of them are being annually replaced by the Famous Howell Roller Mills. Grind twice as fast as the best burr mill made. Does not heat the feed. Grinds Graham and Rye flour as well as feed. Has big capacity. Requires little power. No burrs or stones to wear out. Guaranteed to last a life time. Made in 13 sizes suitable for any size engine. Save one-half your time, gasoline and money by using a Howell Roller Mill. Write for Catalog F-13. We will send it free, together with the Famous Howell Roller Feed Mill Puzzle.

R. R. HOWELL & CO., Manufacturers, Minneapolis, Minn.

BREED THE BEST

There can be but **One Best**
Why lose profits breeding
and feeding scrub hogs?
Two of our Famous
O. I. C. HOGS
weighed **2806 lbs.**
Will ship you sample pair of these
famous hogs on time and give agency to
first applicant. We are originators, most
extensive breeders and shippers of pure
bred hogs in the world. All foreign ship-
ments **U. S. Gov't Inspected**
We have bred O. I. C. Hogs for 53
years and have never lost a hog
with cholera or any other
contagious disease.

Write today
for Free Book,
"The Hog from Birth to
Sale" also True History of
the Origin of the O. I. C.
THE L. B. SILVER CO.
544 Heights Temple Bldg. Cleveland, Ohio

CLASSIFIED ADS CONTINUED 1 Cent A Word

FOR SALE: Full Blooded French Draft Stallion Register No. 23156 National French draft horse association. Name of horse, Mignon. Foaled, April 21, 1909. Color, black; weight about one ton; pretty as a picture. Very good paper, also has 1917 N. D. License. Reason for selling, can't handle horse on account of other business. **E. H. Baumgart, Bergen, N. D.**

SCOTCH COLLIES.—The Companion, farm, stock and watchdog, from the most noted working strains, Highborn Collie Kennels, St. Peter, Minn.

WANTED.—A buyer for my year-old Polled Durham Bull. First offer of \$50 takes him. Address: **R. E. STRUTZ, Bismarck, N. D.**

WANTED. Live Foxes, Skunks, Mink and Badgers, any time. **Envilla Stock Farm, Cogswell, N. D.**

WANTED: Man to wear fine suit, act as agent. Big pay, easy work. **Banner Tailoring Co., Dept. 501, Chicago.**

WANTED: Position on Farm by man and wife by year or proposition farming on shares. Good Stockman. Reference, if required. **Earl Hecker, Killdeer, N. D.**

WANTED to hear from owner of good farm for sale. State cash price and description. **D. F. BUSH, Minneapolis, Minn.**

Oregon & California Railroad Co. grants lands. Title to same reverted in United States by Act of Congress Dated 9, 1916. Two million three hundred thousand acres to be opened for homesteads and sale. Timber and agricultural lands. Containing some of best land left in United States. Now is the opportune time. Large sectional map showing lands and description of soil. Climate, rainfall, elevations, etc., postpaid, one dollar. **Grand Lands Locating Co., Bx 610, Portland, Oregon.**

For Rent: Stock and Grain Farm, one to three miles south of McKenzie, Burleigh County, North Dakota. 900 acres under cultivation. Will rent for one-fourth crop delivered. Adjoining hay and pasture land may be rented with plow land. For further particulars write **W. L. Watson, McKenzie, N. D.**

WANTED—MISCELLANEOUS HELP.—From \$12 a week to \$3,000 a year shows possibilities of life insurance. You can be trained for this business. Will send you free our correspondence course of salesmanship and life insurance. This is not advertising matter but a course of instruction such as you would pay \$50 for. It is yours for asking, free. Write today. **William King, Agency Supervisor, Dep't 59, Missouri State Life Insurance Company, St. Louis, Mo.** Fastest growing life insurance company in America. Insurance in force over \$120,000,000.

Free For Six Months. My special offer to introduce my magazine, "Investing for Profit." It is worth \$10 a copy to any one who has not acquired sufficient money to provide necessities and comforts for self and loved ones. It shows how to become richer quickly and honestly. Investing for Profit is the only progressive financial journal and has the largest circulation in America. It shows how \$100 grows to \$2,200; write now and I'll send it six months free. **H. L. Barber, 588.20 West Jackson Boulevard, Chicago.**

WANTED: REAL STOCKMEN

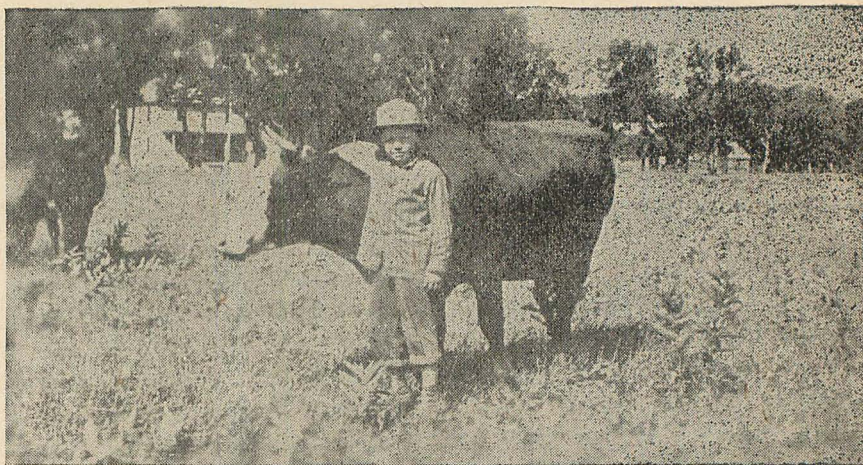
J. H. Shepperd, N. D. Exp. Sta.

Go out into the barn lot, if you want to know whether you are a stockman or not. If the pigs run from you, if the cattle step out of your way as you come and if the colts shy at you there is plenty of evidence that you are not a stockman. If on the other hand you find a calf trying to lick your overcoat, feel a lip of a young horse wiggled on your shoulder, feel something nipping at your shoe and on looking down you are greeted by a lazy grunt from a fat shote, you are a stockman.

Verily, men of the Northwest, we are more lacking in stockmen than we are in feed and general interest. The Germans have an adage which runs: "The eye of the master fattens the cattle." It is not an expensive matter to make stock comfortable with the supply of straw that we have available and we can waste some feed before we learn economic methods and combinations of feed material and still be successful, but if we succeed we must develop stockmen and that

There is another very important factor among the problems before him and that is to learn values, markets and trade shrewdness. I don't mean by shrewdness that he shall try to cheat anyone, but I do mean that he must learn not to be cheated either in buying or selling. "You can buy yourself into such a hole that you can't feed yourself out" is a saying older than I am. "A sheep never dies in debt to you," is another adage and means that the wool carried will always pay a sheep's feed bill since the time you sheared him before. "A young animal will soon grow up to an overcharge while an old one is on the downgrade" is a trite saying of stockmen. "You can never make good with a dainty feeder." "A scrub never topped the market."

And so one could go on with these fact-laden sayings of stockmen, but I will desist. The pasture is available, we can grow the roughage, we grow bran, shorts, screenings, corn and barley enough to finish the meat stock which the pastures will produce and if we will learn to feed and manage, buy and market our live stock success will surely await us.



"I can not understand how any human being can abuse live stock"

is at present our greatest need. Personally I can not understand how any human being can abuse live stock or not feel kindly toward them—but then we are born different—and there might be too much time lost in admiring them and playing with them if all the folks were of my mind.

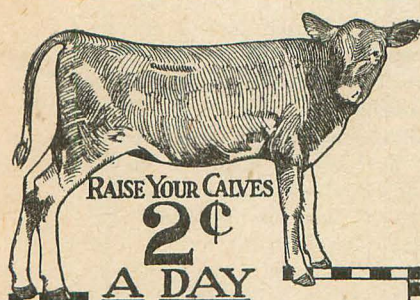
The man who sets out to be kind to his live stock and to make them comfortable will be able to grow and fatten them right after he has had enough experience. If a man will keep thinking it over and listen a bit to his wife's suggestions (most women seem naturally to know pretty well how to care for stock) he will gradually learn to do economical feeding.

CAN MEAT FOR SUMMER USE

It is not generally recognized that there is an important winter as well as summer canning season, if an adequate meat supply is to be provided for the family during the summer months when salt meats only are available to those distant from market. Miss Helen J. Sullivan, Agricultural College, N. D., gives the following directions:

If a beef has been killed, part is preserved for the winter use by freezing. The remainder, including the inferior cuts, has been canned successfully by the following method: Strip the meat from the bones, using that

which is well streaked with fat, or add sufficient fat to each can to give it richness and flavor. Cut the meat into suitable sized pieces, pack closely in glass jars; add salt and pepper to taste. Fill the jar almost full of the meat, adding no water. Put on new rubbers which have been boiled for five minutes, and the tops. If glass top jars are used, adjust the top spring only. In the case of screw tops, screw the top on until it touches the rubber. Put the jar into a boiler or any receptacle having a false bottom, and tight cover, which has in it enough cool or luke-warm water to cover the jars. Boil from three to four hours, depending on the age of the beef, counting time when the water begins to boil. Remove from the boiler and tighten cover. Do not invert the jars as it will disturb the layer of fat on top. The canned meat may be used cold for meat loaf, hash and stews of various kinds. Fish, chicken, pork, and all kinds of meats may be canned in this manner. The Extension Division of the Agricultural College has on hand directions for utilizing the bones and scraps in canning soups. These may be obtained on application.



RAISE YOUR CALVES
2¢
A DAY

Raise strong, healthy Calves at a cost of only 2¢ per day. Don't use whole milk at a cost of 20¢ to 30¢ per day and feed at a loss. **SELL YOUR WHOLE MILK!** Cow's milk varies, too, according to the animal's health, and often causes scours, whereas Prussian Calf Meal will not vary or scour.

Prussian Calf Meal

Is also, rich in vegetable matter, protein and fat, and is a real milk substitute. Only about one-fourth as much meal is required to a feeding as most other brands. Simply mix with water or separator milk.

If your dealer can't supply you, write to us. Money cheerfully refunded if not absolutely satisfactory.

TRY A 12-LB. PAIL TO-DAY!

PRUSSIAN REMEDY CO.,

Dept. A, St. Paul, Minn.



GET RID OF Worms and Bots

You can remove every one of them. We guarantee to kill and bring from the body, dead, in a very short time, all pin worms and bots, with the safe and sure remedy.

NEWVERMIFUGE

Absolutely harmless. Can be given to mares in foal before the eighth month. Horse owners write us that Newvermifuge has removed from 500 to 800 bots and worms from a single horse. An animal that is wormy can't help but be ugly and thin. If your horses are troubled with worms send us your order today. Price \$2.00 for 12 Capsules. **BALLING GUN FREE** with 4 dozen \$5.00, with 2 dozen \$5.00. Postage paid.

Farmer's Horse Remedy Company,
Dept. B2, 592 7th Street. Milwaukee, Wis.

SILO HINTS

The silo prevents the waste of the stalks, leaves, and husks, which contain two fifths of the total feeding value of the corn.

Forage placed in the silo keeps at a uniform quality whereas field cured forage constantly deteriorates.

Construct the wall of the silo so that no air or water is admitted. It must be perpendicular on the inside. Make the foundation deep enough and strong enough to prevent the walls from settling or cracking. If the silo is made of concrete the inside wall must be painted every three years, at least, with a good coat of cement to prevent the acid of the silage from attacking the walls and also to close up any pores. Coal tar diluted with gasoline is an excellent preparation with which to paint.

The following table shows the number of animals that can be fed from a silo for a period of 180 days at the rate of 40 lbs. of silage per animal. For medium to small Jerseys allow 30 to 35 lbs. per day and about 25 lbs. per day for fattening cattle on full feed.

Dimen.	T. Capac.	No. of cows it will keep for 6 mo. 40 lbs. per d.
10x20	28	7
10x24	34	9
12x20	45	11
12x28	57	15
14x26	72	21
16x22	81	23
16x28	102	29
18x26	120	33
20x24	135	36
20x40	230	63
25x35	320	87
25x40	363	100

Corn makes the best silage when ears are dented, or just when it is beginning to glaze.

If the cut corn is not thoroly mixed before being blown into the silo, it will settle very unevenly, spoiled silage probably resulting.

It is well to wet down the silage every time you pack it after the filling process. If you are able to squeeze water from a handful of the corn cut, the silage will need no water at filling.

In filling the silo with oats or wheat the air in the hollow straw must be driven out by water before the crop will keep.

Clover or alfalfa heat more than any other silage crop and must be given plenty of water.

Legumes may be mixed with the corn at the time of the filling of the silo to form a better balanced ration.

No time in recent years has there been such a demand for Holstein dairy stock. It is beginning to be known the world over as the best, hardest and most productive dairy breed, and the world's record recently made by a Holstein cow of 50 pounds of butter in seven days makes the breed the undisputed favorite.

Dairy products are high and will continue to be so, is the universal belief. This is not due entirely to the war, but to supply and demand.

Edgewood Farms, Whitewater, Wis., O. Coburn, Mgr., are offering for sale choice Holstein calves, both sexes, 4 to 6 weeks old, at \$20 each, crated for shipment anywhere. These run seven-eighths to thirty-one-thirty-seconds pure, and can be easily and cheaply shipped by express, shipments the past month being made to Florida, New Mexico, Louisiana, Texas, Montana and Colorado. They can supply a large demand for these youngsters and during the spring months especially, and are now booking orders for deliveries then, or for prompt shipments if desired. It will pay you to write them if you want Holsteins.

—Adv.

BEST FARM PROPOSITION in Red River Valley. 95% under plow, with stock, machinery, feed, and 1917 crop put in the ground, from 160 to 960 acres according to your choice.
Los Ellen, Niagara, N. D., Bx.47, R. 1



Here's The ANSWER

To almost any problem that arises on your farm.

FREE to Landowners Only — who have not had a copy.

This big 160 page book—Ropp's New Calculator (worth 50¢) will be sent free and post-paid. We will also mail you our catalog of—

SQUARE DEAL FENCE

the only wire fence that has the famous self-draining double-grip. Square Deal Lock. Other lasting qualities are heavy 30-40 pure galvanizing, one-piece stay wires and wavy strand wires. Write today.

KEYSTONE STEEL & WIRE COMPANY
6040 Industrial Street, Peoria, Ill.

BOTS AND WORMS IN HORSES

are dangerous and should be exterminated without delay, according to Government bulletin. Nothing will do the work more thoroly and safely than our famous Improved Heureka Worm Capsules. They are absolutely reliable and fully guaranteed and highly recommended by professional men. Price \$2.00 for 12 capsules; or with Bailling Gun, one dozen \$3.50, two dozen, \$5.00, four dozen \$8.00. Order today from The Breeders' Remedy Co., 47 Biddle St., Dept. 24, Milwaukee, Wis.



Poultry Department



TEMPERATURE EXPERIMENTS IN INCUBATION

A. G. Phillips of Perdue University,
Indiana

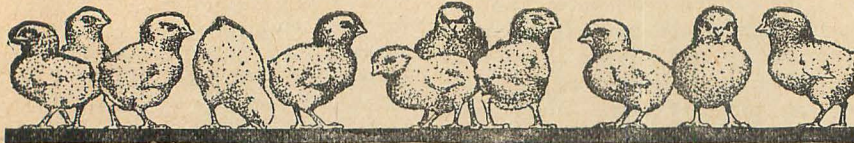
1. A temperature of 101-102-103 degrees, the first, second and third weeks respectively, using a standing

fluence the hatch one way or another.

3. A temperature of 103-104-105 degrees is too high and will injure the hatch greatly.

4. A temperature of 102-103-104 degrees is a little high for successful incubation.

5. There seems to be little difference in number of chicks hatched between machines run at 100-101-102



thermometer on a level with the top of the eggs but not touching them will prove very satisfactory in the artificial hatching of hens' eggs.

2. A temperature slightly above or below 101-102-103 degrees will not in-

fluence the hatch one way or another. degrees, and machines run at 101-102-103 degrees. This means that at such low temperatures a variation of one degree or more will have little influence.

6. Operators of incubators should endeavor to hold down temperatures below common practice, rather than allow them to rise above it.

7. Brown and white eggs need the same temperature.

8. Brown eggs are no warmer or cooler than white eggs.

9. Brown eggs have a tendency to produce poorer fertility, more dead germs, more chicks dead in shell and fewer chicks than white eggs. No reason from the standpoint of incubation can be given for this peculiarity.

13. A temperature with a standing thermometer of 100.5 degrees the first week, 101.5 degrees the second and 102.5 degrees the third week compares well in temperature and hatching results with a hanging thermometer temperature of 103 degrees for three weeks.

This experiment was planned with the idea of finding out the influence of different temperatures in the incubator on brown and white eggs, with the hope of finding the upper and lower temperature limits, influence on temperature readings from placing thermometers at different heights in the machine, and several minor points.

The experiment was divided into four tests, exactly similar and conducted in March and April of the years 1913-1915-1916. The machines were four in number, 150 eggs size, of the sand tray, hot air type, made in 1910, and kept in a good incubator cellar.

Machines and Thermometer

Four incubators, 150 eggs size, made in 1910, were used. They were of the hot air type, supplying heat by both radiation and diffusion, and moisture by a sand tray underneath the egg tray. The machines were numbered 1, 2, 3, and 4. The thermometers used, five in number, were standard incubator thermometers, generally known as hanging, standing, touching, and Inovo. The hanging thermometer was suspended from the top of the incubator, so as to be two inches above the center of the egg tray. The standing thermometer was on a metal stand in the center, toward the front of the machine and the

"Our little ad in your paper has sold all our cockerels. We would like to have you change the ad to the enclosed."

10. Under ordinary conditions it is reasonable to expect white eggs to be 90 per cent to 92 per cent fertile and hatch 75 per cent of the fertile eggs. Brown eggs will run 2 per cent less in fertility and 12 per cent to 15 per cent less in hatchable fertile eggs.

11. Touching thermometers average slightly higher temperatures than standing thermometers. Such differences have no influence on the hatch.

12. As the chicks develop in the eggs, they give off heat tending to equalize the temperature in all parts of the machine. This is demonstrated by the hanging thermometer. This thermometer runs at a uniform temperature for the three weeks, but the temperature at the level with the eggs, starts about 2.5 degrees lower and rises until it comes within one degree of the hanging thermometer temperature on the twenty-first day.

bulb was on a level with the top of the eggs, but not touching them. The touching thermometers were two in number, one on brown and one on white eggs near the standing thermometer. The bulbs of these were on a level with the tops of the eggs and touching them. The Inovo is a long bulb thermometer placed in a celluloid egg and supported by a stand. It is supposed to register the temperature of the germ in an egg. It was placed near the other thermometers.

Temperatures under Experiment

The machines were controlled so that the following temperatures were

FOR SALE: Cockerels and Eggs. Eggs from thoroughbreds. Turkeys, Geese, 7 kinds of Ducks, Pearl and White Guineas, Bantams, Leghorns, Houdans, Hamburgs, Games, Minorcas, Cochins, Buff and White Orpingtons, Silver Laced and White Wyandotts, Barred, White and Buff Rocks, Light Brahmas, Langshans, Rhode Island Reds, Hares, Rabbits, Fancy Pigeons, Guinea Pigs, Dogs. Write wants. **D. L. Bruen, Platte Center, Nebraska.**

Both Machines \$
Freight Only 10
Paid

WINNERS IN BIG HATCHING CONTESTS EVERY YEAR

Think of it! These two UN-
BEATABLE Wisconsin
Machines—
both for only \$10
—freight paid east
of Rockies. Guar-
anteed 10 years and
sold on 30 days trial—

**130 Eggs
130 Chicks**

30 Days Free Trial

**MONEY BACK
IF NOT SATISFIED**

Wisconsin's are made of genuine California Redwood. Incubators have double walls, air space between, double glass doors, copper tanks, self-regulating. Shipped complete with thermometers, egg tester, lamps, etc., ready to run. Biggest incubator bargain of the year. Send for our new 1917 catalog fully describing this outfit. A postal brings it by return mail.

**180-Egg Incubator and Brooder both \$12.75
WISCONSIN INCUBATOR COMPANY
Box 42, Racine, Wis.**

Stop Hatching Weak Chicks

WITH CHEAP INCUBATORS

Remember, it is not how many you hatch that counts, but how many you raise. A Queen costs but little more, and the extra chicks that live and grow soon pay the difference.

Queen Chicks Live and Grow

Most of the chicks you lose in the first two weeks die because they did not have proper vitality or strength to start with. Queen Incubators are famous for big hatches of strong healthy chicks that live and grow. The American Poultry Journal wrote us: "During the many years you have been advertising Queen Incubators in our paper we have not, to the best of our recollection, received a single complaint from one of your customers." Catalog free

**Queen Incubator Co.
119 N. 14th St. Lincoln, Neb.**

Prices \$8 Up

Capital Incubators

Save You Money

We don't advertise big, but we build incubators, brooders, etc. that are used by leading poultry men, by State Experiment Stations, and sell at lower prices. It will pay you to get our free catalogue.

Capital Incubator Co., Dept. T, St. Paul, Minn.

Are You Living On the Chickens?

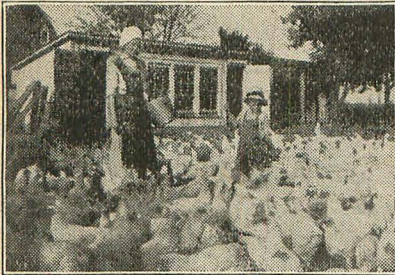
By H. H. Johnson



H. H. Johnson
"The Incubator Man"

A n odd confession come to light the other day. One of our nearby customers came into the office and among other things said, "Do you know it just dawned on me that during the five years we lived in Texas the wife kept me and the children? She raised chickens and always seemed to have money. The children were never without good clothes, and grocery and meat bills were always paid. I cannot recall of having taken care of these things, and I really believe that her poultry kept us while I kept myself busy farming."

I wouldn't doubt this. I have received many letters from farmers who admitted that their wives made more dollars from poultry than they made dimes farming. This is no reflection on grain and stock raising but it shows what poultry can do when put to the test.



You Can Live Well on Poultry Profits

Of late years, more farmers are taking to poultry raising. Instead of leaving it all to the women folks and cussing every time the hens roost on the buggy or farm machinery, they are providing for poultry houses and giving the chickens a place to stay. They find that it pays. Maybe the chickens require a little grain. But so do the hogs. And what farmer couldn't raise a few hundred chickens for the time and expense put in on raising half a dozen hogs?

The old order of things is changing. The poultry farmer has found it profitable to look at his chickens in the same light that the dairy farmer looks at his cows. That is so far as the money-making possibilities are concerned. But instead of having to buy feed for his poultry, the chickens can be fed the scraps from the table, and the waste from the feed bins and feeding that cattle and hogs tramp into the mud.

No one is too poor to raise poultry profitably. And it takes less expense, less work, and less management to make farm poultry pay than any other kind of poultry.

There is not much capital needed for starting. Some unused shed can do for the chicken house, hence no expense in that direction. About the only equipment needed is a good incubator, a brooder and the eggs. If the incubator is built right, no special room or cave is needed for it. It supplies its own protection from the weather. The same can be said for the brooder, although it is always well to set the brooder in a big box, such as a piano box, so that the little chicks can run around with comfort.



Table Scraps Make Good Feed

A flock of only 50 laying pullets this fall should be worth \$50.00 at \$1.00 each, or if kept for layers should bring twice the amount in income. The spring frites are welcome to the family table or bring big market prices.

It has been our experience that an investment of a few dollars to start early hatching means 200 to 400% profit.

At this writing we have a little over 700,000 customers. We have dealt with more poultry raisers and sold three or four times as many incubators as any other concern that I know of. I believe this success is due, first to our practical common sense incubators and brooders; second to our knowledge of poultry raising as 95 per cent of the people have to raise it; third to our plan of facing the proposition fairly, striking the average without playing head lines of sensational and unusual successes, of which we have our share; and fourth to our settling down to business here in Clay Center, Neb., among the people who bought our first machines.

Our new annual catalog deals with profitable poultry raising and we are always glad



Are You Selling Eggs or Buying Them? to send a copy free. Also we like to write letters. If you have any poultry troubles, tell us and maybe we can offer a suggestion or two that would fit. Write for our book anyway and let's get acquainted.

\$960

Tell us your poultry troubles - We will offer suggestions.

Brings you this top-notch OLD TRUSTY with redwood case—freight paid to any point east of the Rockies—a trifle more to points farther west. (For express shipment, write for express prepaid price.)

Here Is Your Answer to the Price Question

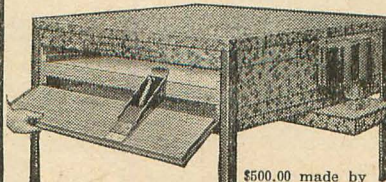
THIS beats anything we have ever offered before.

Write us at once—today—for catalog telling all about it. Here's your chance to save money. In spite of rising costs and increasing prices everywhere, we can still let you get under the wire for a low priced, top-notch quality machine. It's genuine Old Trusty—the same machine we sold in 1908, but improved. Thousands of these old machines are still in use and outside of our metal covered Old Trusty, they never had an equal for quality. Write today.

Old Trusty Incubators and Brooders

I urge you to get in touch with us at once and speak for one of these money-saving redwood models. We've always had a call for them, the demand is now stronger than ever. We may have stock enough to last through the season, but to be safe, write today and ask us to hold one for you, or ship at once as you wish. Also note the new improvements on our metal covered Old Trusty. Big oil drawer holds 5 to 6 quarts. Saves work and time of filling. Handy thermometer holder on the door saves time and stooping. This feature is also in our redwood covered machine. Write for Our Book of Poultry "Know How." H. H. Johnson, "The Incubator Man."

The M. M. Johnson Co. Clay Center, Neb.



Quick shipment. We Pay Freight. Write for express prepaid price. Shipments made from factory at Clay Center, Neb., or warehouses at St. Joseph, Mo., or Seattle, Wash. Safe deliveries guaranteed.

\$500.00 made by Mrs. S. A. Hefner of Chickasha, Okla., last year, and she expects to double the amount this year with Old Trusty. Old Trusty has 700,000 users.



120 Egg Size
Famous Redwood Covered Old Trusty Improved. Note the handy thermometer holder. Has same redwood case, regulator and pure copper tank as metal covered machine.



M. M. Johnson
Inventor of "Old Trusty"



This Book FREE

The M. M. Johnson Co., Clay Center, Neb.

☐ If only our book is wanted, put an X in this square and sign your name and address. Answer following questions if you care to.

How many chickens do you keep? _____ Do you

hens lay in fall and winter? _____ Have you used

an incubator and have you been successful? _____

Do you live in town or on the farm? _____

Have you had any poultry troubles? _____

(Write a letter if not room enough here)

Name _____

Address _____

registered by the standing thermometer for the first, second and third weeks.

3. The lamps were filled in the evening, and this was always done after all recordings had been made,

Incubator No.	First week	Second week	Third week
1	100 degrees	101 degrees	102 degrees
2	101 degrees	102 degrees	103 degrees
3	102 degrees	103 degrees	104 degrees
4	103 degrees	104 degrees	105 degrees

Each incubator had the same number of eggs from every hen, making the eggs identical as to origin, for each temperature tested.

The other thermometer readings were not controlled in any way. The standing was always the controlling thermometer and the regulation of the machine depended upon it.

Seventy-five of both White Plymouth Rock and White Leghorn eggs, representing brown and white eggs, were put in each machine.

Care of Incubators

In caring for the machines, ordinary good rules of incubator management were used, as follows:
(For illustrations see cover page.)

Upper Figure. Egg tray showing hatch of machine No. 1, using temperatures of 100-101-102 degrees.

Left-hand Figure. Egg tray showing hatch of machine No. 2, using temperatures of 101-102-103 degrees.

Right-hand Figure. Egg tray showing hatch of machine No. 3, using temperatures of 102-103-104 degrees.

Lower Figure. Egg tray showing hatch of machine No. 4, using temperatures of 103-104-105 degrees.

Table I.—Hatching Records of All Machines
Averages of Four Tests

Machine No.		1	2	3	4
Number eggs set	white	75.0	73.75	74.0	74.0
	brown	75.0	75.0	75.0	75.0
Number eggs infertile	white	5.33	5.75	5.5	6.75
	brown	8.67	9.25	10.0	8.50
Number dead germs	white	3.0	6.75	2.0	6.25
	brown	5.67	9.5	7.75	12.50
Number dead in shell	white	12.0	9.25	17.50	32.75
	brown	18.67	14.75	17.50	33.75
Number hatched	white	54.67	52.0	49.0	28.25
	brown	42.0	41.5	39.75	20.25
Per cent eggs fertile	white	92.88	92.2	92.6	90.9
	brown	88.44	87.67	86.7	88.7
Per cent dead germs to fertile eggs	white	4.30	9.9	2.9	9.2
	brown	8.5	14.2	11.8	18.9
Per cent dead in shell to fertile eggs	white	17.22	13.6	25.7	48.4
	brown	28.1	22.4	27.2	51.5
Per cent hatch to fertile eggs	white	78.47	76.4	71.4	42.4
	brown	63.3	63.4	61.0	29.6
Per cent hatch to eggs set	white	72.89	90.1	66.2	38.4
	brown	56.0	55.4	53.0	27.0
Per cent cripples to fertile eggs		1.7	.9	2.1	5.6

1. The temperatures of the machines were regulated before the eggs were put into them.

2. All temperatures were read five or six times a day and recorded morning, noon and evening.

regulators adjusted and eggs handled.

4. The incubator doors were not opened for forty-eight hours after the eggs were put in.

5. Eggs were turned morning and evening, from the second to eighteenth day.

6. The moisture trays were kept puddled with water.

7. Beginning on the eighth day, the eggs were cooled once a day until they felt cool to the eye lid.

8. The eggs were tested on the seventh and fourteenth days.

9. On the eighteenth day the machines were closed and not opened, except to remove the sand trays when the chicks commenced to hatch. The

ber of dead germs, chicks dead in shell and hatched, time of hatching and other small details. All testing and hatching records were kept for both brown and white eggs for each machine for each of the four tests. Time does not permit going into the details of each test, but the preceding table shows the hatching record of each machine using the averages of the four tests for each machine.

THE MAGNITUDE OF THE POULTRY BUSINESS

Michael K. Boyer

In the census report of 1910 we find the total number of farms reporting poultry was 5,585,032, or 87.6 per cent of all farms in Continental United States. Only 6,507 of the farms reporting poultry failed to report chickens. Turkeys were reported from 871,123 farms, or 13.7 per cent; ducks from 503,740, or 7.9 per cent; geese from 662,324, or 10.4 per cent; Guinea fowls for 339,538, or 5.3 per cent.

The number of fowls reported in 1916 was 295,880,000, and their total value was \$154,663,000 or an average value of 52 cents. Nearly 95 per cent of all the fowls were chickens; they numbered 280,345,000, and their value was \$140,206,000, the average value being 50 cents. Turkeys numbered 3,689,000 and were valued at



62 BREEDS, Pure-bred Chickens, Ducks, Geese, Turkeys. Hardy northern raised, vigorous, beautiful, Fowls, eggs, incubators, at low prices. America's Pioneer Poultry Farm; 23 years exp. Large fine Annual Poultry Book and Catalog Free. **F. A. NEUBERT, Box 689, Mankato, Minn.**

For Sale. Pure bred Rose Comb White Wyandotte Cockerels from good laying strain. Price \$2.00 each. **Mrs. C. H. Newhall, Loma, Mont.**

White Langshan eggs, \$3.50 setting, F. Runner Ducks \$1.50 setting. **Seima Shanander Dayton, Iowa.**

Hatching Eggs from a good strain of Pure Bred S. C. Rhode Island Reds, 15 for \$1.50; also a few Cock Birds and Cockerels for sale. **E. N. Hedahl, Mercer, N. D.**

Pure Bred S. C. Buff Orpington Eggs for hatching, from selected fowls, good color, excellent layers. Eggs ready April 1st. \$1.50 per 15; add postage. \$7.00 per 100. **Mrs. Lydia Skeels Westby, Mont., Box 72.**

FOR SALE. Purebred Barred Rock Hatching Eggs, \$1.50 and \$2.50 per 15; \$7.00 and \$11.00 per 100. No cockerels left. **Laurel Hill Farm, Westby, Mont.**

FOR SALE. Silver-Laced Wyandottes. Eggs and baby chicks **Mrs. Thos. Brady, Lansford, N. D.**

FOR SALE. Well Bred Up R. C. Reds. First prize winners; cockerels, \$1.25. **Mrs. John Henderson, Bx 228, Beulah, N. D.**

White and Columbia Wyandottes, Light Brahmas, and S. C. White Leghorns Over 30 years a breeder. Stock and eggs for sale. **MICHAEL K. BOYER, Box 27, Hammononton, New Jersey.**

Quality White Rocks

Hatching Eggs and Stock in season. We have the Best. **O. A. Barton, Valley City, N. D.**

machines were not opened again until the hatch was finished.

10. The egg trays were removed at the end of the twenty-first day.

Records were kept of time of turning, amount of cooling, fertility, num-

\$6,606,000, the average value being \$1.79. The ducks reported numbered 2,907,000, and were valued at \$1,567,000, with an average value of 54 cents, of geese the total number was 4,432,000, and the value \$3,195,000, or an average value of 72 cents. In 1910 there were also reported 1,765,000 Guinea fowls, valued at \$613,000.

The total number of fowls in the United States increased from 250,880,000 in 1910, a gain of over 45,000,000 or 18.1 per cent. The figures for the two censuses are comparable, despite the change in date of enumeration, fowls under three months old being excluded in both cases. The number of turkeys, ducks, and geese, however, decreased very materially in nearly every section of the country. The aggregate increase in fowls was, therefore, due to the increase in the number of chickens, which rose from 233,566,000 to 280,345,000, or 20 per cent. The percentage of decrease for turkeys was 44.1; for ducks, 39.3; geese, 21.9.

Yet with all this growth, there are thousands of farms on which poultry is either a stranger or kept in very limited quantities. This, mainly, is due to the fact that those farmers have not as yet grasped the situation. They must be educated up to that point.

A former United States Secretary of Agriculture once said in an interview: "Nothing is the matter with the American hen, but something is wrong with the American farmer." No one is better adapted, or has better facilities for making poultry culture a profitable crop than is the American farmer, with his broad acres, and natural advantages. Yet it is the fact that on very many farms the poultry department is a small affair, and often left entirely to the already overburdened women folks. Many mortgages have been, and can still be lifted from the farms by well kept hens.

It was that grand old man of poultry culture, the venerable Isaac K. Felch, who more than thirty years ago made these wise remarks:

"Farmers, this poultry keeping has more than a money value for you. Interest your boys in it, for thereby they learn many of the principles that underlie the successful breeding of stock—fitting them, when older, to better manage cattle and horses. The rapid production of chickens enables them to try as many experiments, in a few years, as would take a lifetime with stock. In the breeding of fowls they learn that like produces like more surely, and only, as a rule, where the stock is bred in line, and that to produce chickens uniform in type and

color, they must have, in both sire and dam, a preponderance of the blood of the desired type; they must mate kindred blood judiciously, avoiding too close relationship—for by mating fowls of one blood for three generations we produce sterility in the egg. They learn that prepotency of sire is more marked in the mating of kindred blood, and in the offspring of dams of weak constitution, and when appearing in the coupling of radically different blood, that it is an exception and not the rule. They learn that the blood most difficult to subjugate, in the end has more lasting quality, and does the flock the most good as a new infusion of blood; these interests, once awakened, cannot slumber; the boys become thoughtful, and, as years increase, you find in them a help not found in your hireling."

We venture to say that such training would keep more boys on the farm, and would soon teach them in-

dependence. Farmers' sons rush to the crowded cities, only later on to regret that they left the farm. They grow tired of the farm for the reason that there was a continual drudgery without any item of interest. They want something they can call their own, and in the crowded cities they believe they can be satisfied.

If fathers would give their sons substantial encouragement, like starting them in the business of raising poultry and eggs, we believe they would do double duty.

Boys, keep out of the cities. The boy born and raised in the country becomes an easy victim in the city. It is a bad life to lead. Better a pair of overalls, a colored shirt and a straw hat, than all the fopishness of creased pants, cutaway coats, etc. Better in old clothes and honest and healthy, than in the cod-fish aristocratic outfit of a thief, braggard and sickly being.

School and Home



Miss Ura Leader,
Ruraldale, N. D.,
Dear Miss Leader:

There are two rather distinct types of sheep, mutton and wool. I suppose you have by this time noticed that different kinds of live stock

have two or more types. That the type depends quite largely upon the purpose for which the animal is being selected.

There are several different breeds of sheep. Each has its particular advantages in different places. There is no one best breed of sheep. The more common breeds may be listed as follows:

Breed	Type	Wool
American merino	merino	fine
Delaine merino	merino	fine
Rambouillet	merino	fine
Southdown	mutton	medium
Shropshire	mutton	medium
Oxford	mutton	medium
Hampshire	mutton	medium
Dorset horned	mutton	medium
Cheviot	mutton	medium
Leicester	mutton	long
Cotswold	mutton	long
Lincoln	mutton	long
Tunis	mutton	medium

Sheep may also be classified according to market classes and grades. When range sheep are sold it is usu-

ally for mutton and their suitability determines their value.

Long wool sheep are seldom raised on the range since their fleeces are too open and do not give enough protection from storms. For the open range a good mutton type with a close dense covering of wool is desirable. This combination is usually obtained by mixing fine and medium woolled breeds.

Sheep may be made a very useful class of stock on every grain farm. They are great consumers of by-products. They seem to prefer weeds to good pastures. Even if turned into a wheat field when it is young they will avoid the wheat and consume the weeds.

The cost of keeping sheep is small. It takes very little money to make a start. The flock may be rapidly increased. The returns are quick and constant. You will do well to encourage the production of sheep.

The home garden has many advantages. It is often entirely neglected in a newly developed state, and yet it is one of the first things that should be attended to. Every farm home should have a good home garden. If properly arranged the cost of the work necessary will be very slight. The garden should be so planned that work may be done with horses. There is no particular reason why such work should be performed by the women.

A garden is essential for good

health. It will reduce the cost of living. It will afford a better living. It is necessary for the children. The products are more appetizing than canned stuff. I can not think of a single reason why one should not have a garden except pure laziness.

The North Dakota Experiment Station has several good bulletins on this subject. You can get copies free of charge. Do not neglect this. In these bulletins will be found information on methods of laying out the garden, the better varieties for planting, the care of the garden, and other useful data.

Yours truly,
O. O. CHURCHILL.

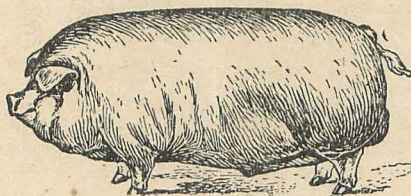
SOME OF THE SIMPLEST PRINCIPLES OF AGRICULTURE

By Chore Boy

Hogs

THE hog is one of the important farm animals. It has a long history and has not been looked upon with favor by all people as one will realize when

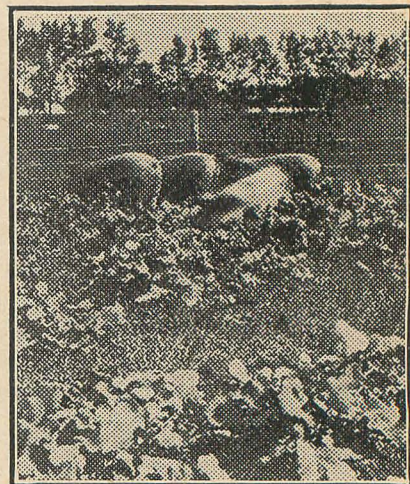
nate any of these diseases that the hog may have. One of the valuable features of the hog is the rapidity with which it grows. The marketable hog can be produced in seven or eight months. They are also the most prolific of the farm animals. The average litter will likely be five or eight or even more, depending upon the breed. The hog, however, must have concentrated feed. It cannot forage in the same way that cattle and sheep do, however, methods have been worked out whereby cheap food can be provided for swine. One of these is pasture. The best pasture plant is alfalfa tho some contend that



The Chester White.

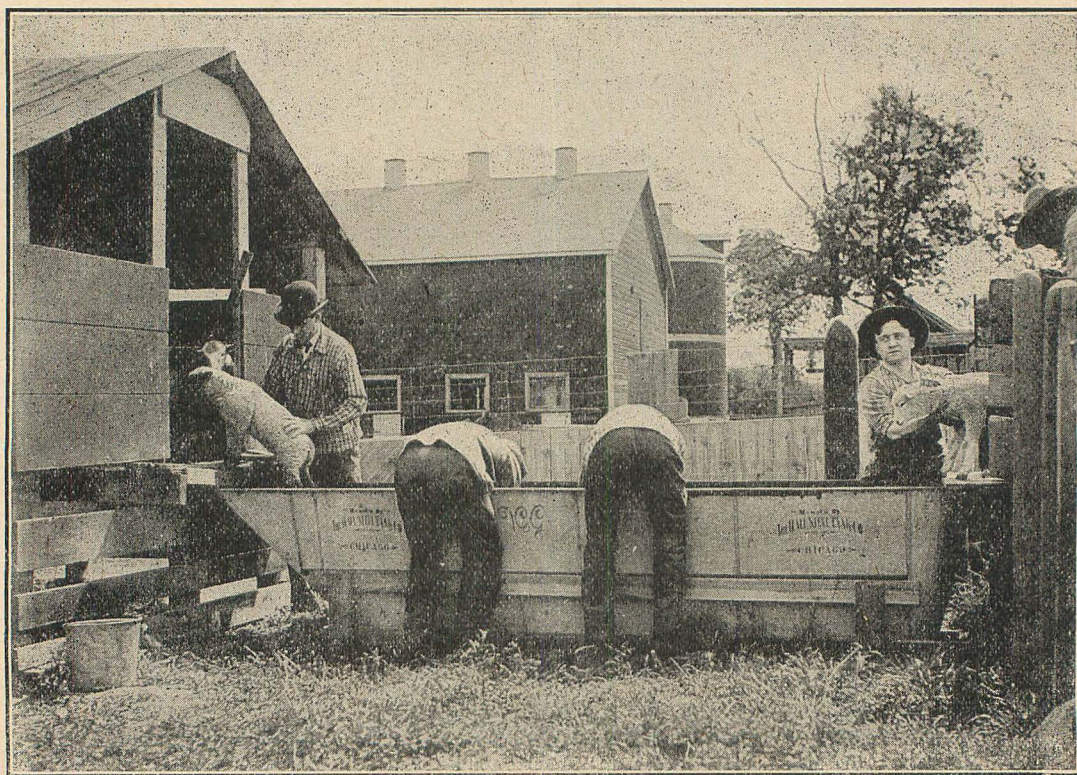
sweet clover is even better. The alfalfa contains more of the material that the young pig needs for making growth than any other forage crop

can be planted in the spring as rape, oats and barley. The rape is the best relished of these three and is also the most nutritious. If it is not



Pigs in Rape

pastured too closely, it will keep on growing all summer. The oats and barley will produce pasture until mid-summer. For fattening hogs, the



Dipping Sheep to rid them of Ticks and Scab

one considers the way they are spoken of in the Bible.

The hog is subject to some diseases that are harmful to man but at the present time our knowledge of these diseases and of sanitation, and the inspection of our slaughter houses makes it possible to practically elimi-

and consequently should be provided where possible. Winter rye also makes a good pasture as well as brome grass or clover. If these have not been started, they will be out of the question for this season. This, however, does not mean that pasture cannot be provided as there are some crops that

cheapest method is to plant a field of corn for them to hog down. An early corn is preferable as they can be turned into this sooner than into a late variety. The pigs, when on corn, should have access to pasture and should also have an abundance of clean water. One acre of corn should

Beautify The Home

Let us Co-operate with You

12 Hardy Perennial Flowering SHRUBS FREE!

By far the most magnificent collection ever offered. Providing a veritable sea of ever-changing, fragrant bloom from the earliest spring, through the summer, fall, and to the very edge of winter. With ordinary care, they will bloom the same year planted.

2 Golden Bell — Forsythia

These splendid old shrubs, growing 8 to 10 feet tall, light up the garden with glinting masses of yellow, very early in the Spring before the leaves appear. Their bright golden flowers, often appearing before the snow has gone, vie with the Crocus as harbingers of Spring.

2 Thunberg's Barberry

Inimitable neat, dense and very graceful. Spherical in shape. Its brilliant yellow flowers, which appear early in the spring, are followed by vivid scarlet berries which remain throughout the winter. Its deep green foliage changes in the fall to scarlet and gold. Grows 3 to 4 feet high.

2 Deutzias One Pride of Rochester One Crenata

These valuable shrubs come from Japan. Very hardy, with luxuriant foliage, and a profusion of Massive white flowers 4-6 inches long. The Crenata is double white, tinged with rose. The Pride of Rochester grows 6 to 8 feet high, and blooms in May, before all the others.

2 Sweet Shrub — Calycanthus

A very beautiful shrub of quick growth. The wood is fragrant, the foliage rich, and the flowers, deep chocolate red, have a peculiar spicy fragrance. Grows 4 to 5 feet high. Blooms in June, and at intervals until frost.

2 Snowball Hydrangeas

A grand addition to the summer flowering shrubs; dwarfing the show of other sorts in July and August by the magnitude and profusion of its flower heads. The "snowballs" are conspicuously white and imposing. Grows about 6 feet high. Very hardy.

2 Rose of Sharon

Blooms from late August until winter with a profusion of large, brightly colored flowers. Makes the most gorgeous show of color to be found among the deciduous shrubs, at a time when few flowers are in bloom. Attains a height of 10 to 12 feet.

These twelve shrubs, full one-year size, will be sent to you at once, with full instructions for storing until planting time, and for planting. If you prefer, we will instruct the nursery to store the shrubs, and send them to you at the right time to plant. All charges are prepaid. They are delivered FREE to your mail box.

Send only 75 cents in money order, check or stamps to the North Dakota Farmer, Lisbon, N. Dak., and you will receive this collection, post paid and the North Dakota Farmer, one year. Address,
NORTH DAKOTA FARMER, - - LISBON, N. D.

be sufficient for six spring pigs for two months.

The Garden

The garden should be made to furnish as much of the summer living as possible and by canning, it can be made to supply vegetables for the winter as well.

North Dakota produces the very finest kind of vegetables, which will be the special inducement for providing a good garden. It is out of the question to bring into the state as good vegetables in cans as can be produced and canned in North Dakota. The boys and girls in the Canning Clubs have demonstrated the great possibilities that the garden furnishes, in fact, they have shown that the garden is one of the most valuable pieces of land on the farm when properly taken care of. Many boys and girls have secured more profit from their garden containing two square rods than have the parents from an acre of ground.

The garden will need to be started as soon as the ground can be worked as such vegetables as beets, onions, radishes, cabbages, peas, carrots should be planted early. These are not hurt by frost and early planting will furnish a supply for the table that much sooner. Such vegetables as beans, corn, cucumbers, tomatoes can not be planted before the latter part of May, some of them and especially tomatoes and celery should be started in the house or in the hot boxes so that they can be transplanted to the garden when the weather is right for them. The kind of vegetables to plant will of course have to be determined by the tastes of the family. It is a good plan to secure seed catalogs and study these as one will often times find vegetables and flowers that one will like to try out or new varieties may have been developed that will be superior to the ones already grown. Much progress is being made in improving plants as well as bringing in new ones from foreign countries. The garden should receive a good deal of attention as it will pay well for the trouble.

Poultry

The poultry industry, while often looked down upon, is yet one of the big industries of the country. While chickens, turkeys, etc., are small, yet by increasing the numbers they become of consequence. Chickens are very commonly raised while turkeys, ducks and geese are not so commonly found. The turkey is raised principally for the meat. It costs but little to feed them as, if they have a chance to forage, they will furnish most of their own food. Ducks are good layers, in fact, in some cases

they will lay as many eggs as chickens. They also grow rapidly and produce splendid meat. Geese furnish a meat food as they make a rapid growth and are good foragers. They could very well be raised much more extensively than they are at the present time. Chickens, however, are the most numerous of the poultry family.

Every boy and girl ought to raise chickens and if attention is given to provide the conditions necessary for good health and proper nourishment, these birds will give a good return. It must be remembered that chickens as well as other poultry feed from the ground, consequently, it is easy for the food to become contaminated with the droppings. This means that a good deal of care needs to be given in feeding to see that the dishes are clean into which the food is put, or in case grain is fed in straw, that the straw is renewed frequently so as to keep it clean. The other thing to remember is that it takes food to produce eggs and so we can get a hint from nature. It is in the spring and early summer that the chickens lay the most eggs and if we study the conditions we will find that at this time they have green food and bugs in abundance and they also have a chance to pick up gravel and to sit around in the sunshine and to dust themselves in the soil. These things can be provided in the winter. In place of the green stuff, beets and cabbage can be furnished. When these are fed, hang them up so that the birds can just reach them. In place of the bugs, feed some meat food such as green bone or meat scraps. In place of the gravel, furnish grit. Oyster shells should be supplied for making egg shells. Some dust should be provided and this can best be secured from the road in the summer when it is dry. The sunshine can be provided by having plenty of windows in the poultry house. Ventilation must also be furnished and this can be done by covering a window or two with muslin or cheese-cloth.

It has been found that the early hatched pullets are the best layers so that now is the time to start producing good layers for next year. It has also been found that hens do not lay much after they are two years old and they are also more apt to be diseased than the younger pullets, consequently, they should be removed from the flocks.

Sheep

The sheep has been one of man's most important animals. It has furnished wool for clothing as well as meat. This has resulted in sheep being very widely distributed and until recent

times practically every farm home had a few sheep to produce the wool necessary for making the clothing for the family. Since clothing has been woven in factories, the few sheep that were usually seen on each farm have to a large extent disappeared and in place of these large flocks are produced in certain sections. Sheep, however, are one of the important animals on the farm even today and one of the big reasons why they are not more common is the fact that dogs are allowed to run at large, which means that sheep are not safe, the losses from dogs have been great enough to discourage sheep raising on many farms. The sheep make use of many things that would otherwise go to waste on the farm so that the cost of feeding them during a good part of the year will be practically nothing except the care that they may require, in fact they will eat up such things as weeds and in this way be actually beneficial. Sheep give two returns, the wool and the natural increase. The sheep is small in size, which makes it convenient for butchering on the farm in the summer time, so that where sheep are kept, fresh meat can often be provided where it would otherwise be out of the question. If some kind of control over dogs can be provided, the sheep industry will greatly increase on the farms.

Sheep should have access to water and salt every day in the year. If salt is given at irregular intervals the sheep will frequently eat too much and get out of condition as a result.

Care of the Dairy Utensils

In washing dairy vessels, it is much better to use a brush than a cloth.

In purchasing tinware buy only the heavy-grade seams, covered with solder. A wooden handle on a milk pail adds a place for germs to collect.

Never permit cans into which milk is strained to stand in the stable during the milking process.

Milking machines will be profitable to most dairymen who milk more than ten cows. The milking machines exclude dirt and air, two very important points in improving the milk supply.

Secure the separator to a solid foundation by means of lag screws and set it level.

Oil spindle and all gearings each time before using.

Flush all gearings and bearings with kerosene once each month and apply fresh oil.

Keep a pair of large, sharp steel scissors hanging on a hook near your kitchen cabinet and use them to cut celery, shred lettuce and cabbage, to open fish and poultry, to trim fins and tails from fish, to trim steaks and chops and to remove cores from grapefruit. You will find many other uses for these scissors.

CANCER



and Tumors successfully treated (removed) without knife or pain. All work guaranteed. **Come, or write for free Sanatorium book** Dr. WILLIAMS SANATORIUM 3023 University Av., Minneapolis, Minn.

ENCOURAGE AND MAKE USE OF THE SPIRIT OF PLAY

Playground Games, 10 cts. Rules for playing the more common games of the school ground.
Game of Times, 15 cts. A help in teaching and learning the tables and simple factoring.
Davies Number Cards, 25 cts. All possible combinations. For all grades. In boxes.
Westland Phonetic Cards, 25 cts. Busy work for primary grades. An aid to sight reading.
Fundamental Operations of Arithmetic, 15 cts. Invaluable for rapid work in numbers.
Uncle Will's Magazine, The Rotary, 50 cts. Unique. Has personal element. 20th year.
North Dakota Speller, 40th M. For 5th-6th, and 7th-8th Grades, 15 cts each. Trial, both 25 cts.
Westland Educator, Box F. - - - **Lisbon, North Dakota**

NORTH DAKOTA SCHOOL LAW

For the first time since 1911 has the State published a volume of the School Laws, and not until 1919 will another edition be printed by the State.

WOULD YOU KNOW

For what reasons a pupil may be suspended or expelled?
 Whether one is allowed to read the Bible in school?
 What branches must be taught every day?
 For what purposes the school house may be used?
 Who may vote on school matters and what are the voters' qualifications?
 How schools may be consolidated?
 What recourse one has if he is not satisfied with the ratings of the examining board?
 Whether free text-books may be adopted without a vote?
 What to do when a pupil or parent disturbs the school?
 What provision is now made for transportation of pupils?
 How pupils may be compelled to attend school?
 Whether children may be employed in stores and factories?
 How a certificate may be revoked?
 What the law is regarding drinking cups, fire escapes, hitching posts, school libraries, pension fund, accredited diplomas, etc.?

THEN ORDER A COPY OF THE LATEST SCHOOL LAWS

Price, post paid, 30 cents.

W. G. Crocker,

Lisbon, North Dakota

Seasonable Receipts

Mrs. Sadie Baird, Editor

CHEESE DISHES

From the standpoint of the house-keeper, cheese is of importance because of its high nutritive value, particularly its high percentage of protein or muscle-forming materials, because of the ease with which it can be kept and prepared for the table, and because of its appetizing flavor and of the great variety of ways in which it can be served.

Cheese Breakfast Dish

Boil one cup of rice thoroly by putting it on in cold water and when it comes to a boiling heat, pour the water off; rinse with cold water; return to stove; cover the rice with cold water, and again let it come to a boiling heat; repeat the rinsing process;

then add two cups of boiling water and cook until the rice kernels are tender. Put in greased pudding dish with alternate layers of sliced cheese; topping with layer of grated cheese. Bake and serve very hot.

Boston Roast (A Meat Substitute)

One pound can kidney beans or equivalent quantity of cooked beans; one-half pound grated cheese. Bread crumbs; salt. Mash the beans or put them thru a meat grinder. Add the cheese and sufficient bread crumbs to make the mixture stiff enough to be formed into a roll. Bake in a moderate oven, basting occasionally with butter and water. Serve with tomato sauce. This dish may be flavored with onions chopped and cooked in butter and water.

Cheese Biscuit

Two cups flour; four teaspoons baking powder; two tablespoons lard or butter; seven-eighths cup milk; one-fourth teaspoon salt; grated cheese sufficient to give desired flavor.

Mix all the ingredients excepting the cheese as for baking powder biscuits. Roll thin, divide into two parts, sprinkle one-half with grated cheese; lay the other half of the dough over the cheese, cut out with a small cutter and bake.

Cheese Pudding

Cut two cups of stale bread in small pieces and add three cups of milk; let stand one hour. Season with pepper and salt. Add three eggs beaten till light, two cups of grated cheese, sprinkle over the top and bake one hour.

Potato Soup

Save the water in which potatoes have been boiled. Cut up a slice of bacon into bits, fry; in the bacon fat cook a tablespoonful of minced onion. Add a tablespoonful of flour, salt, pepper, the bacon, and the potato water. If a more pronounced meat flavor is liked, drop in a beef cube to each cup of stock or use part soup stock.

Liver Sausage (Requested Receipt)

Boil separately one-half a pig's head and a liver, until very tender. Prepare the meat of the head as for hogshead cheese and add the liver chopped fine. Season to taste and moisten with the liquor in which the head was boiled. Put in molds to cool and slice as wanted for use. Do not use too much liver.

Omelet

Four eggs, whites and yolks beaten separately; put in yolks good one-half cup milk, big teaspoon cornstarch, one tablespoon melted butter, salt, and pepper; mix well. Pour into greased skillet, and add stiff whites. Fold with turner. Serve with crisp breakfast bacon.

Creamed Eggs

One tablespoon butter; one tablespoon flour; one pint milk; six hard boiled eggs; salt and pepper to taste.

Heat the milk; into this put butter, flour and yolk of two eggs, rub it to a smooth mass; let all simmer together. Cut the hard boiled eggs into this.

Poached Eggs on Toast (For the Invalid)

Cut thin slices of bread; toast, butter, season with salt and cover with whipped white of egg. Place in the center of each a raw yolk. Bake in hot oven for a couple of minutes.

Potato Ragout

Pieces of ham fat or bacon, cut half an inch thick; place in kettle to brown a spoon of flour, let brown, add peeled potatoes the size of small eggs; add just water enough so when done the water will be about boiled away.

How to Prepare Chuck Steak

Cut one and one-half pounds of chuck steak into cubes; pour on it two tablespoons of cider vinegar; let stand one hour. Heat two tablespoons of beef drippings or butter or marrow in a granite dish or stew pan; put in it two tablespoons of chopped onion; cook until yellow. Add prepared meat with a little pinch of thyme or mint; add a little water, cover tight; simmer an hour or more until meat is tender; then wet a tablespoon of flour with a cup of the broth; mix with meat and let simmer fifteen minutes. Serve.

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